



LNHS

THE LONDON NATURALIST

Journal of the
LONDON NATURAL HISTORY SOCIETY

No. 81

2002

LONDON NATURAL HISTORY SOCIETY

The Society welcomes new members, both beginners and experts. Its recording area (the London Area) lies within a 20-mile (32-km) radius of St Paul's Cathedral and here most of its activities take place. Although much covered with bricks and mortar, it is an exciting region with an astonishing variety of flora and fauna. The Society comprises Sections whose meetings are open to all members without formality. For those interested in arachnology, archaeology, botany, conchology, conservation, ecology, entomology, geology, herpetology, mammalogy, ornithology, palaeontology, or rambling, there is a Section ready to help.

Publications

The London Naturalist, published annually, contains papers on the natural history and archaeology of the London Area and beyond, including records of plants and animals.

The *London Bird Report*, also published annually, contains the bird records for the London Area for each year, as well as papers on various aspects of ornithology.

Bulletins of news items, including the Society's *Newsletter* and the *Ornithological Bulletin*, are sent to members throughout the year.

Indoor meetings

These are held in most weeks throughout the year, with lectures, discussions, colour slides and films on all aspects of natural history.

Field meetings

Led by experts to visit interesting localities, both within and outside our Area. These excursions are very popular with beginners wishing to increase their knowledge, and enable members to get to know one another.

Library

A large selection of books and journals on most aspects of natural history is available for loan or consultation by members free of charge.

Reading circles

Many important natural history journals are circulated by the Sections at a fraction of the cost of subscribing direct.

SUBSCRIPTIONS

ORDINARY MEMBERS	£15.00
JUNIOR MEMBERS	£5.00
SENIOR MEMBERS	£8.00
FAMILY MEMBERS	£3.00
CORPORATE SUBSCRIBERS	£15.00

Junior membership is for persons under 18, or under 25 and receiving full-time education, and senior membership is for persons over 65 who have been continuous members of the Society for ten complete years. All except family members receive one free copy of *The London Naturalist* and the *London Bird Report* each year. Cheques and postal orders, payable to the London Natural History Society, should be addressed to:

The Membership Secretary, LNHS,
Ruth Day, 18 Zenoria Street,
London SE22 8HP

THE LONDON NATURALIST

Further copies of this issue of *The London Naturalist* may be obtained (price £6 plus £1 postage and packing in the UK and the Republic of Ireland) from Catherine Schmitt, 4 Falkland Avenue, London N3 1QR. Back numbers of most recent issues of both *The London Naturalist* and *London Bird Report* are also available from the same address. Cheques should be made payable to the London Natural History Society.



Top: *Xanthoria parietina*, the sunburst lichen, which you will notice on roofs where birds perch, indicates a place with lots of nutrients, particularly nitrogen. It is a remarkably resilient lichen. A related species, *X. polycarpa*, is increasing as sulphur dioxide pollution decreases, but has smaller very incised lobes.

Bottom: *Lecanora muralis*, the chewing gum lichen, has distinctive pale green rosettes, with radiating marginal lobes and abundant fruits (from pale to chocolate brown as they mature), and is common on pavements, tarmac paths and concrete copings. It is nitrophilous and pollution tolerant and is especially abundant in London. Although common this species is not represented in the herbarium collections.

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No. 81
for the year 2001

Edited by K. H. Hyatt

ISSN 0076 0579

ISBN 0 901009 14 8

World list abbreviation: Lond. Nat.

Published December 2002

© London Natural History Society 2002, London

Printed by Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA

LONDON NATURAL HISTORY SOCIETY

Founded 1858

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Editor, *The London Naturalist*: K. H. Hyatt, 1 Tremcelynog, Rhandirmwyn, Llandovery, Carmarthenshire SA20 0NU.

Editor, *London Bird Report*: A. Self, 16 Harp Island Close, London NW10 0DF.

Editor, *Newsletter*: A. J. Leppard, 63 Rydal Gardens, Hounslow, Middlesex TW3 2JJ.

Editor, *Ornithological Bulletin*: N. Tanner, 11 Collins House, Newby Place, London E14 0AX.

Elected Members of Council: N. Anderson, M. Burgess, Ms A. Chipchase, Dr J. F. Hewlett, A. J. Leppard, Miss F. J. Turtle.

Representative Members of Council: BOOKHAM COMMON SURVEY — Dr I. S. Menzies; BOTANY — R. A. Blades; ECOLOGY AND ENTOMOLOGY — Mrs C. M. Schmitt; HAMPSTEAD HEATH SURVEY — Dr C. Bowlt; ORNITHOLOGY — Miss N. A. Duckworth.

† Deceased March 2002.

The Society's Recorders

Botany

Flowering plants and vascular cryptogams: R. M. Burton, MA, FLS, Sparepenny Cottage, Sparepenny Lane, Eynsford, Kent DA4 0JJ (01322 863216).

Lichens: Ms A. J. H. Waterfield, B.SC., 29 Gloucester Crescent, London NW1 7DL (020-7267 8060).

Ecology and Entomology

Mammals: C. Herbert, 67a Ridgeway Avenue, East Barnet, Hertfordshire EN4 8TL (020-8440 6314).

Reptiles and amphibians: T. E. S. Langton, B.SC., 12 Millfield Lane, London N6 6RA (01986 784518).

Fishes: Dr Ruth Kirk, School of Life Sciences, Faculty of Science, Kingston University, Penrhyn Road, Kingston upon Thames, Surrey KT1 2EE (020 8547 2000 ext. 62732; home 020-8401 6766).

Arachnida: J. E. D. Milner, B.SC., 80 Weston Park, London N8 9TB (020-8341 2158).

Coleoptera (Carabidae and Coccinellidae): P. R. Mabbott, B.SC., 49 Endowood Road, Sheffield S7 2LY (0114-201 4504).

Coleoptera (Lucanidae and Buprestidae): Dr D. S. Hackett, FRES, 3 Bryanstone Road, London N8 8TN (020-8292 6134).

Coleoptera (families not otherwise listed): M. Barclay, 47 Tynemouth Street, London SW6 2QS (020-7371 9095).

Lepidoptera (butterflies): L. R. Williams, 34 Christchurch Avenue, Kenton, Harrow, Middlesex HA3 8NJ (020-8907 4428).

Lepidoptera (moths), Syrphidae, and invertebrates not otherwise listed: C. W. Plant, B.SC., FRES, 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP (01279 507697).

Orthoptera: Miss S. L. Bain, 232 Brecknock Road, London N19 5BQ (020-7609 0430).

Hymenoptera Aculeata: R. W. J. Uffen, 4 Mardley Avenue, Welwyn, Hertfordshire AL6 0UD (01438 714968).

Heteroptera: Vacant.

Odonata: Neil Anderson, B.SC., 52 Beechwood Avenue, Greenford, Middlesex UB6 9UB (020 8578 2464).

Plant galls, Isopoda and Myriapoda: K. Hill, BA, FLS, 93 Elmhurst Drive, Hornchurch, Essex RM11 1NZ (01708 456652).

Mollusca: Vacant.

Records may be sent to the appropriate recorder (where shown) or to Colin Plant who will distribute to each recorder the relevant data from a mixed set of records.

Geology

c/o R. E. Butler, B.SC., FGS, 205 Barnett Wood Lane, Ashted, Surrey KT21 2DF (01372 274103).

Ornithology

Inner London: D. McKenzie, 26 Cuthbert House, Hall Place, London W2 1LT.

Hertfordshire: A. D. D. Wilson, 7 Douglas House, Davison Drive, Cheshunt, Hertfordshire EN8 0SZ.

Buckinghamshire: A. V. Moon, 46 Highfield Way, Rickmansworth, Hertfordshire WD3 2PR.

Kent and Lower Thames (London Bridge to Tilbury): D. Miller, 65 Whitemill Road, Crayford, Kent DA1 4AB.

Surrey and Upper Thames (Wandsworth to Staines): S. J. Spooner, 32 Berkeley Drive, West Molesey, Surrey KT8 1RA.

Middlesex: S. Connor, 21 Salisbury Road, Enfield Lock, Enfield, Middlesex EN3 6HG.

Essex: S. R. Harris, 155 Downsell Road, London E15 2BS.

Requests for information should be made to the appropriate recorder.

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Report of the Society for the year ending 30 June 2001

Approved at the Annual General Meeting on 12 December 2001

The sixtieth anniversary of the Bookham Common Survey occurred in 2001; two Open Days were arranged and the Society would like to place on record its thanks to all leaders, field workers and friends who have contributed to the ongoing work of the Survey. In October 2000 your Society organized a conference in conjunction with The Linnean Society on 'The Thames Revisited 25 years on' — a follow-up to that arranged a quarter of a century ago; some of the papers will be published in *The London Naturalist*. Richard Fitter (our retiring President) for his second presidential address talked on the possibilities for natural history in London in the year 2100 — the talk was enhanced by the showing of a film made by Anglia Television in 1971, 'Bird's Eye View of London'.

Membership

We regret we must record the deaths of Mike Andrews, Mrs Karen Aston, Revd Eric Clark, George Cooper, Henry Dickinson, Miss Ann Gooderham, Mrs Jean Lord, Miss Jean Pugh, Geoffrey Reynolds, Dr Andrew Seager and Roger Wood.

Your Council has appointed Tony Barrett an Honorary Vice-President of the Society in recognition of his unique service as President, Treasurer and now as Secretary. In addition Maureen Currie has been made an Honorary Member of the Society.

As at 30 June 2001 the paid up membership stood at 1,131 (the same as last year) made up as follows:

Ordinary	829 (829)	Junior	9 (9)	Honorary	30 (26)
Family	83 (86)	Senior	148 (143)		
Corporate	34 (34)	Life	4 (4)		

There has been a decline in recruitment. Only 74 people have joined the Society, compared with 103 in the same period last year; this is of real concern and will be the cause of much debate by your Council and its various committees.

Publications and journals

Andrew Self, Ruth Day and the team supporting them were finally able to publish the *London Bird Report* for 1998 — it is intended that publication will be restored to an annual basis once the backlog is cleared. Members are very much in debt to all those who worked on the journal. *The London Naturalist* No. 79 was published in December 2000. As ever it was well received by members and the scientific community. The *Newsletter* and the *Ornithological Bulletin* continue to be enjoyed by members.

Research stations

Hampstead Heath Survey. The regular monthly meetings have continued and the survey is now well established.

Bookham Common. The sixtieth anniversary celebrations were the highlight of the year. Work on the survey was, unfortunately, inhibited by the outbreak of foot-and-mouth disease, which curtailed some of our activities.

Sections

Botany. An interesting and varied programme both indoor and outdoor took members from the herbarium at The Natural History Museum to amongst others sites Hatfield Forest, Rainham Marshes, the North Downs, etc., not forgetting the cemetery at Tower Hamlets.

Ecology and Entomology. The Section again organized our participation at the Annual Exhibition of the Amateur Entomologists' Society. It also organized the Millennium Lecture held at The Linnean Society's rooms in November 2000.

Ornithology. Field trips continue to be well supported, but the absence during the period of an indoor meetings secretary meant that indoor meetings, except for the sectional Annual General Meeting, were not held. Happily they will resume in September 2001.

Fuller reports on the activities of the research stations and sections are published in *The London Naturalist* each year.

Library

In all 103 books and reports have been added including many review copies and donations 'solicited' by Library supporters; the Society is very grateful for all contributions. Sadly there has been little response from members for requests for local reports etc.

Our members do not show much enthusiasm in using the Library; various committees of Council are considering the future shape, style and size of the Library.

Finally our thanks must go to the staff of Imperial College who have been of great help to our Librarian and her team.

Conservation

The London Biodiversity Partnership has now published the first tranche of action plans and these as well as the audit are available on its web site (<http://www.lbp.org>). The Society is taking the lead on the Mistletoe Action Plan, which is being co-ordinated by the Botany Section. Members are also actively participating in many other action plans. The Generic Issues Plan aims to set up a Biological Records Centre for London by 2006. Your Council considered this at its January meeting, welcomed the proposal and seeks to co-operate with other partners in the project. It has to be borne in mind, however, that our society is an entirely voluntary organization which makes it difficult to commit its Council or its members to any action.

Other matters

The Society always needs more assistance in expanding its activities — for some years we have not been able to realize our full potential. We record our thanks to all our hardworking officers but we need more of them.

Members of Council (the Trustees), 1 July 2000–30 June 2001

N. Anderson*	P. C. Holland
E. B. Bangerter, deceased May 2001	K. H. Hyatt
A. J. Barrett* (Secretary)	Mrs I. J. Kettle, until 6 December 2000
K. F. Betton	A. J. Leppard*
D. Bevan	D. C. McClintock*, w.e.f. 6 December 2000
R. A. Blades	Miss M. L. Medina, until 6 December 2000
Dr C. Bowlt (Chairman)	Dr I. S. Menzies
Miss E. P. Brown	D. J. Montier
M. Burgess, w.e.f. 6 December 2000	E. M. Nicholson
R. M. Burton*	R. M. Payne
R. E. Butler	C. W. Plant
Miss A. Chipchase, w.e.f. 6 December 2000	C. Robinson, until 6 December 2000
Dr P. F. S. Cornelius	Mrs C. M. Schmitt
Miss R. Day	P. J. Sellar
Miss N. A. Duckworth*	Dr M. C. Sheahan, until 6 December 2000
R. S. R. Fitter	R. A. Softly
R. W. Hale	Miss F. J. Turtle
Miss V. S. Harley, until 6 December 2000	M. J. West*
Mrs L. Hewitt	H. M. V. Wilsdon*
Dr J. F. Hewlett	

*Members of Administration and Finance Committee as at 30 June 2001.

Treasurer's report for 2000/2001

At the end of the financial year on 30 June 2001, the total net assets of the Society were £444,513, compared with £508,196 the previous year, representing a decrease of around 12 per cent.

Income for the year totalled £31,612, compared with £35,072 in 1999/2000. Subscription income (net of tax recoverable on covenanted subscriptions) at £15,766 was slightly below the previous year's figure of £16,333, and the Society received only £10 from donations. Sales of the Society's various publications generated £1,253, compared with £1,963 in the previous year, but apart from the regular journals, no new publication was produced this year. Investment income fell by around 14 per cent from £16,278 to £13,933, reflecting economic conditions in the latter part of the year. At the end of year market value of the Society's portfolio of listed investments stood at £325,614, compared with £490,186 in June 2000. However we were in the process of transferring to new investment managers at the year end, and unit trusts to the value of £122,792 had just been sold. The proceeds were temporarily held on bank deposit, which explains the abnormally high figure for cash in hand and at bank.

Overall expenditure during the year was £41,709, compared with £60,930 in the previous year when we made a grant of £20,000 to Wildfowl and Wetlands Trust towards an educational facility at Barn Elms. Management and administrative expenses were reduced by about 7 per cent, but publication costs were higher, with the delayed production of *London Bird Report* No. 63.

Reserves Policy

The majority of unrestricted general funds can be regarded as expendable endowment since they are invested to provide a regular source of income as well as capital growth for the Society.

Statement of Trustees' Responsibilities

Charity law requires the trustees to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the charity and of its financial activities for that period. In preparing those financial statements the trustees are required:

- to select suitable accounting policies and then apply them consistently;
- to make judgements and estimates that are reasonable and prudent;
- to state whether applicable accounting standards have been followed subject to any material departures disclosed and explained in the financial statements; and whether the financial statements have been prepared in accordance with the Statement of Recommended Practice 'Accounting by Charities';
- to prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charity will continue to operate.

The trustees are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the charity and to enable them to ensure that the financial statements comply with the Charities Act 1993. They are also responsible for safeguarding the assets of the charity and for taking reasonable steps for the prevention and detection of fraud or other irregularities.

Report of the auditors to the members of the London Natural History Society

As stated in the Treasurer's report, the Society's Council as trustees are responsible for the preparation of financial statements. It is our responsibility to form an independent opinion, based on our audit, on those statements and to report our opinion to you. We have been appointed as auditors under section 43 of the Charities Act 1993 and report in accordance with regulations made under section 44 of that Act.

Basis of opinion

We conducted our audit in accordance with Auditing Standards issued by the Auditing Practices Board. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgements made by the trustees in the preparation of the financial statements, and whether the accounting policies are appropriate to the Society's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Unqualified opinion

In our opinion the financial statements give a true and fair view of the state of the Society's affairs as at 30 June 2001 and of its incoming resources and applications of resources in the year then ended and have been properly prepared in accordance with the Charities Act 1993.

1st Floor, Centinal
46 Clarendon Road
Watford, Herts WD17 1HE
14 November 2001

BAKER TILLY
Chartered Accountants
and Registered Auditors

Summarized accounts for the year ended 30 June 2001

These summarized accounts have been extracted from the Society's annual accounts for 2000/2001. They may not contain sufficient information to provide a full understanding of the financial affairs of the Society. For further information the full accounts, the auditors' report on these accounts and the trustees' report should be consulted. Copies can be obtained from the Society's Hon. Treasurer, M. J. West, 52 Trinity Road, Ware, Hertfordshire SG12 7DD.

The annual accounts were approved by the trustees on 14 November 2001.

Summarized statement of financial activities for the year ended 30 June 2001

	Unrestricted funds	
	2001	2000
	£	£
Incoming resources		
Subscriptions received from members	15,766	16,333
Interest receivable	245	194
Investment income	13,933	16,278
Publications/journals income	1,253	1,963
Other sundry income (including donations and bequests)	415	304
Total incoming resources	31,612	35,072
Resources expended		
Direct charitable expenditure	30,975	49,371
Management and administrative expenses	10,734	11,559
Total resources expended	41,709	60,930
Net outgoing resources before revaluations and investment asset disposals	(10,097)	(25,858)
(Losses)/gains on investment assets	(53,586)	44,522
Net movement in funds	(63,683)	18,664
Fund balance brought forward at 1 July 2001	508,196	489,532
Fund balance carried forward at 30 June 2001	£444,513	£508,196

Balance sheet as at 30 June 2001

	2001	2000
	£	£
Fixed assets		
Tangible fixed assets for use by charity	2,006	1,136
Investments at market value: listed	325,614	490,186
cash	(382)	16,137
	327,238	507,459
Net current assets/(liabilities)	117,275	737
Total net assets	£444,513	£508,196
Represented by:		
Unrestricted funds	£444,513	£508,196

Official and sectional reports for 2001

CONSERVATION

On 12 January 2001 the London Biodiversity Partnership published the first tranche of action plans to carry forward the London Biodiversity Action Plan (LBAP) Audit which was launched the previous year. This new volume included habitat action plans for London's woodland, chalk grassland, heathland and wasteland in addition to species action plans for bats, water vole, grey heron, peregrine, sand martin, black redstart, house sparrow, stag beetle, tower mustard and mistletoe. Members of the Society actively participated in many of these action plans. The Botany Section, for example, investigated the current distribution of mistletoe in the capital and the Ecology and Entomology Section looked at the status of mistletoe-associated species — obligate insects and berry-eating birds. The Conservation Officer prepared an account of 'London's exotic flora' — plants that have originated overseas and become naturalized in London. They form an important element of the urban flora and, although a few cause problems through their vigorous encroaching growth, most are benign and add colour and diversity to many parts of London. This volume of the LBAP also set out the objective of establishing a biological records centre for London by 2006, to collate and disseminate a wide range of biological information, linked to the National Biodiversity Network. The Society warmly welcomed the proposal and looks forward to co-operating with other partners in the project. It has to be borne in mind, however, that our Society is an entirely voluntary organization and this may sometimes limit the degree to which we are able to assist.

In September 2000 the Mayor of London published his Draft Biodiversity Strategy: 'Connecting with London's Nature'. As a requirement of the Greater London Authority Act 1999, this is the first regional biodiversity strategy with a statutory basis. The document therefore has great potential significance for improving wildlife protection in London. Most of its proposals, if carried forward after consultation, would be implemented through the LBAP process. Many individual LNHS members responded to the questionnaire that was included with the Draft Strategy, and the Conservation Officer and the Secretary of the Nature Conservation Working Group collated a joint response on behalf of the Society. The Conservation Officer was also called to give evidence as an expert witness before a 'close scrutiny panel' of the GLA. The resulting Biodiversity Strategy for London is awaited with interest (see review, page 66).

The Nature Conservation Working Group continued their activities with a survey meeting held jointly with the London Wildlife Trust in June at Foxley Wood (London Borough of Croydon). Conservation work involving the removal of trees, saplings and scrub had been undertaken during 1998/1999 to extend the open structure of a field being managed to keep the area open and encourage the return of chalk downland flora. The survey aimed to collect baseline data on the flora growing in this most recently cleared area so that changes in the structure and composition of the vegetation could be monitored in later years by repeating the survey. Five, one-metre square, quadrats were established and surveyed by Society members. I am most grateful to Freda Turtle for co-ordinating this work.

Nature conservation within the Society suffered a great loss with the death in March 2002 of Ruth Day, and although an obituary to Ruth appears later in this journal, I should like to place on record here a brief personal note of appreciation and gratitude for all the hard work and commitment she gave as Secretary to the Society's Nature Conservation Working Group over many years. Nature Conservation lay at the heart of all Ruth's work for the Society and her enthusiasm and energy in furthering its cause will be greatly missed.

DAVID BEVAN, *Conservation Officer*

BOTANY

As usual the Botany Section has organized a good number of talks and field meetings. There were talks from Paul Bartlett on 29 January on the wild flowers of the Peloponnese, and from Annie Chipchase on 15 March on brownfield sites, which was a combined Botany and General meeting, and at the AGM in November we had a talk from Martin Bridge on the oaks of Hillingdon Woods.

Informal meetings included the usual best botanical slides in January, and two plant identification sessions in June and July led by George Hounscome and Rodney Burton.

A few field trips had to be cancelled because of foot-and-mouth disease, and some meetings were rather restricted, but fortunately most London areas were not affected. We were still able to go to Brookwood Cemetery, Home and Bushy Parks for mistletoe (a joint meeting with the Friends of Bushy and Home Parks), Morden Hall Park, Bentley Priory, Brooklands, Dancers End NR, Railway Fields for beginners, Wimbledon Common, Grays Chalk Pit, Banstead Downs, College Lake, central London, Regent's Canal, Blackheath, Gun Hill and Tilbury, Home and Bushy Parks for urban botany, east London canals, Swanscombe, Stanmore, and Haringey for the annual fungus foray. Field trips continue to be enthusiastically attended, and members obviously appreciate them both for their friendliness and for the opportunity to learn plant identification skills.

We are as always very grateful to all the speakers and leaders who give us their time and expertise, and we thank our meetings secretaries for the hard work involved in organizing these meetings.

Our two Recorders have also been very active: Amanda Waterfield, the lichen recorder, has managed to get lichens into the GLA Churchyards and Cemeteries Habitat Action Plan and is collating records from London herbaria at Kew, The Natural History Museum and the South London Botanical Institute. Rodney Burton, recorder for higher plants, has entered 56,574 records into his database, as well as answering many enquiries and working on the London biodiversity plans for mistletoe and the native black poplar.

DAVID BEVAN, *Chairman*, MARY CLARE SHEAHAN, *Secretary*

ECOLOGY AND ENTOMOLOGY

The section continues to provide interesting meetings, indoors and in the field, on a wide variety of aspects of the natural world.

At January's informal meeting members showed beautifully photographed slides of insects they had seen at home and abroad during the year. In February Richard Butler spoke on 'The lure of the Northeast' sharing his enthusiasm for the geology, archaeology, architecture and history of that region. In March Dr Pat Morris showed how 'The conservation biology of dormice' had enabled his team to effect their reintroduction into suitable woodlands. In May John Thompson spoke on his two favourite topics, Iceland and geology, with a talk entitled 'Spreading ridge and mantle plume'. In June Catherine Schmitt told of the variety of wildlife discovered by intrepid 'Early naturalists in America'.

In September we were hosts to the British Entomological and Natural History Society for the Brad Ashby Memorial Lecture when Dr Maxwell Barclay described 'Bookham Common: 100 years of beetle recording'.

Once again the AGM in October consisted of reports from recorders, three written and seven in person, constituting a mini-seminar, with those present enabled to compare the effects of an extremely wet winter and of the impact of foot-and-mouth restrictions on observing and recording the various taxa. The featured recorder was Paul Mabbott, recorder of Coccinellidae, who reported on results so far of the London Ladybird Survey.

Six field trips were organized during the year; luckily none of them were cancelled due to foot-and-mouth disease restrictions. In February John Thompson led a trip to the Earth Galleries of The Natural History Museum and in May members searched Oak Hill Park for spiders with Edward Milner. In June Dan Hackett led an exploration of Bushy Park for general natural history, then in mid July he led a rewarding hunt for glow-worms at Mill Hill. A trip to Epsom Common was particularly successful in the number of members attending and the variety of species found, including a few rarities. Kensal Green Cemetery yielded twenty-two species of spider in December under Edward Milner's leadership.

As in previous years, the Section represented the Society at the Amateur Entomologists' Society exhibition, selling maps, books and journals as well as making the work of the Society known to a wider public.

As our committee is gradually shrinking in size, we are seeking Society members willing to join us to carry on the work of the Section and the Society. We also continue to look for an indoor meetings secretary to arrange meetings on entomological and ecological topics. Furthermore, since agreeing last year to incorporate the Geology Section, we are still seeking a member willing to arrange indoor and field meetings of a geological nature.

JOHN A. THOMPSON, *Chairman*, CATHERINE SCHMITT, *Secretary*

ORNITHOLOGY

This was generally an encouraging year for the Section, in terms of various officers appointed and projects moved forward. Indoor Meetings Secretary Nicola Overington prepared a full and varied programme, from the wilderness of Lapland to a detailed talk on ring ouzels, although the meetings were not always well attended in spite of the quality of the speakers.

Jennifer Hayden took over the organization of local field meetings and arranged a successful programme in the tradition of her predecessor. Neil Anderson continued organizing coach trips further afield. Unfortunately, foot-and-mouth precautions led to the cancellation of some meetings in the first few months of the year. The rest of the year, however, saw highlights such as the trip to North Kent Marshes in August 2001, where over 200 avocets were observed. Also in August, Des McKenzie led a first special on gull identification at Charlton. Those on the trip to Titchwell in December were treated to skeins of pink-footed geese, the resident black-winged stilt, several little egrets, 30 twites, snow buntings and a variety of raptors and owls. Field trips continued to be well supported, and thanks go to the members volunteering to lead them.

Good progress was made on the 1999 *London Bird Report* under the general editorship of Andrew Self, and on *The breeding birds of the London Area* under the coordination of Jan Hewlett. In spite of the foot-and-mouth precautions, many members participated in various surveys coordinated by the Research Committee under Mike Dennis, and Derek Coleman continued to organize numerous BTO surveys. The two-monthly *Ornithological Bulletin* continued to provide a range of interesting records from in and around London, thanks to records submitted by a large number of observers and under the editorship of Nick Tanner.

Thanks are due to all the officers and committee who contributed to the Section's smooth running in 2001.

DAVID REAR, *Chairman*, NICOLA DUCKWORTH, *Secretary*

Book reviews

Hybrid ducks. The 5th contribution towards an inventory. Eric and Barry Gillham. B. L Gillham, Bury St. Edmunds, 2002. 88 pp. 95 colour photographs. £17.00, paperback. ISBN 0-9511556-6-0.

This is the fifth volume in the expanding inventory of hybrid ducks by the Gillhams. Basically a systematic list of some 220, mainly first-generation, hybrid combinations (but also including examples of second/third generation hybrids as well as back-crosses and trigens) of some 400 hybrid individuals, investigated by the authors up to January 2001. Collectively these five publications (to date) represent a lot more than just *Anas* and *Aythya* and as such, they are the sort of thing most serious birders ought to consider acquiring. This volume maintains the format of the fourth edition published in 1996, which differed from the four previous volumes by excluding detailed plumage notes, instead supplying brief descriptions relative to parentage and/or resemblance to other species or hybrid combinations! Most of the birds detailed are of captive origin (but where records relate to 'wild' individuals, this is emphasized) and consequently the twenty-four pages of close range photographs are of reasonable quality, illustrating some truly incredible-looking creatures. In fact, your eye is readily attracted to this booklet by the photograph of a spring male Eurasian wigeon *Anas penelope* × northern pintail *Anas acuta* gracing the cover. One criticism that some may have is that this is of little practical use as a field reference, dealing as it does, with mainly exotic species, but there are instructive photographs and brief detail on some combinations which any British birder should find useful e.g. Eurasian wigeon × American wigeon *Anas americana*, American wigeon × northern pintail and Eurasian teal *Anas crecca* × green-winged teal *Anas carolinensis*, as well as some *Aythya* hybrids. Read the text and look at the photographs and you will undoubtedly be left with a strengthened impression of Anatidae promiscuity, particularly when you are confronted with images of common shelduck *Tadorna tadorna* × wood duck *Aix sponsa*, tufted duck *Aythya fuligula* × king eider *Somateria spectabilis* and Coscoroba swan *Coscoroba coscoroba* × Hawaiian goose *Branta sandvicensis*. At £17.00 this may appear to be a little pricey for a sixty-five page volume, but is actually quite good value given the dearth of information on hybrid wildfowl, whatever their provenance.

D. T. MCKENZIE

The transformation of rural England. Farming and the landscape 1700–1870. Tom Williamson. University of Exeter Press, Exeter. 2002. 199pp. £18.99 softback, ISBN 0 85989 634 X; £47.50 hardback, ISBN 0 85989 627 7.

Tom Williamson is Lecturer in Landscape History at the University of East Anglia and you may have seen him with Aubrey Manning in a television programme, in the Talking Landscapes series, on the history that shaped the landscape of the Fens.

This is a wide-ranging book about the events and new ideas that helped to develop England's farming and rural landscape in the eighteenth and nineteenth centuries. The author divides England into regions, such as Light Land, Moor and Vale, etc. This enables him to present and discuss his evidence as it relates to a particular area or soil type. Although changes occurred throughout England different factors prevailed in different areas.

Weaving throughout the book is the effect of enclosure which although it began in late medieval times, continued in the period under discussion. Enclosure was not however alone in shaping farming and the landscape — other factors included new crop rotations, liming and marling of acidic soils and new land drainage methods. There is discussion of ecological effects such as hedge and tree removal as well as the development of parkland and the destruction of ancient, semi-natural habitats among other things.

The book ends with a short chapter looking forward to the agricultural depression, the coming of the Forestry Commission and, with our entry to the EEC, another onslaught on the environment begun by farmers. What is clear is that successive waves of change in farming have altered our landscape and continue to do so even now.

This is a book full of facts and ideas that is ideal for the student or those with a genuine interest in the subject rather than those who want a simple version of what occurred. It was not a simple story to tell. The text is detailed with statements and facts being amply justified with relevant examples. It is well referenced. There are very few illustrations although what are there are interesting — photographs, maps and tables.

FREDA TURTLE

The surveys of Buckingham Palace Garden

†DAVID McCLINTOCK

Presidential Address read at the Annual General Meeting
on 12 December 2001

David McClintock died shortly before our Annual General Meeting. He realized that he was too ill to make the presentation himself and asked Dr Colin Bowlts, Chairman of Council to read out a shortened version on his behalf. This follows the Chairman's tribute to our late President.

Ladies and Gentlemen. It is with great sadness that I announce the death of our President, David McClintock. He died rather suddenly on 23 November after suffering from increasing physical tiredness for about a year, although still mentally alert. He was 88 years of age.

David was looking forward to giving his Presidential Address to you this evening, but a few weeks ago he thought he might not be fit enough to attend. He therefore sent me on Monday 19 November a shortened version, which he asked me to read out tonight. He died on the Friday. He had not at that time given a title to his address.

David was a plantsman of distinction. I say 'plantsman' because not only was he a botanist of repute, sufficient to have been President of the Botanical Society of the British Isles, and of whom Prof. Clive Stace wrote in his *New flora of the British Isles*. 'By far the most help has been received from David McClintock. His knowledge of British plants is unparalleled and he has shared it freely', but he was also a valued member of the Royal Horticultural Society and had been presented with their Veitch Gold Medal, and in 1996 with their most prestigious award, the Victoria Medal of Honour. He was an international expert on heathers, and he maintained the National Collection of *Sasa* bamboos in his garden at Bracken Hill, Platt, in Kent.

At various times he was President of five societies. He wrote ten books and many articles. His *Companion to wildflowers* is full of good things, and *The pocket guide to wild flowers*, which he and Richard Fitter wrote together in 1956, remains even today the favourite book of many botanists.

David McClintock was the inspiration for the first Buckingham Palace Garden survey in the 1960s, and remarkably, also for the repeat three decades later, in which he involved the LNHS fully. The final volume of the findings of this survey was sent to you last week, and is a tribute to him.

David was a long-standing member of our Society. I remember him saying, with some amusement, that his investment in life membership in 1937 had more than paid off. It seems extraordinary to me that he had not been President sooner — and now he is gone. It is our loss.

Ladies and Gentlemen, I ask you to rise for a minute's silence in memory of our late President, David McClintock.



The surveys of Buckingham Palace Garden

The first thing to say is how very disappointed I am not being able to give this talk myself. The summary that Colin Bowlt is kindly reading out cannot show the comments and asides I would have inserted or how I might have brought the audience in. But, as it is, I hope some may have stories of their own to pass on or correct. And I'm fortunate to have Mark Lane, Head Gardener, Buckingham Palace, to show you some of the slides he has taken at different times of the year.

But here is some background information on how the two surveys of the Palace garden have been carried out.

It was Lt.-Col. John Codrington of the Coldstream Guards who in effect started it all up. He was a great character, knowing everyone from the top to the pubkeepers. Among his wide acquaintances was Fred Nutbeam, the much-loved Head Gardener. Between them, they arranged for three of us, Ted Lousley, Duggie Kent and myself to look for the wild flowers, a visit I repeated twice. This virtually virgin territory was long overdue for closer investigation. I enquired of a high-up in the Palace, with whom I had been at prep school, if this might be possible. He referred me to the Master of the Household, then Sir Mark Milbank, and he asked the Queen, who graciously said, yes. He asked me to report every few months how we were getting on, to tell her. I don't know if he ever did. I then had the job of finding available specialists to exploit this great opportunity.

I was doing quite a bit of broadcasting at the time, often with Maxwell Knight, who was glad to help Bill Bristowe with his expertise on spiders. At that time we were let in by Fred by the back gates. Just around the corner, Bill showed me the spider, *Segestria florentina*, to which I would pay my respects while waiting — until the wall was cleaned. Prof. O. W. Richards undertook searching out those who could manage the insects and the like, John Bradley doing Lepidoptera. He brought the mercury-vapour trap from which, as some of you may have seen, has been recorded the staggering total of 640 species, about a quarter of our Lepidoptera, including four recorded for the first time in Britain. One of these is *Monochroa hornigi*, a pest of cocoa in west Africa. It was fresh and certainly had not just flown in. The evening before there had been a gathering of Commonwealth leaders. Among the delegates was the bushy-bearded Nkruma, from west Africa. Did the larva travel that way? Anyway we called it 'Nkruma's Beard', which was not taken up as its official English name. It is depicted on plate VIII of the final report. There is a special cabinet at the Museum to hold these butterflies and moths. Stanley Cramp and Bob Spencer undertook the birds. Stanley's routine was to get to the Palace an hour before he was due at work. He would then sit and listen.

I should mention fungi. Dr Ramsbottom at the Museum undertook these, but every time I dated him to come, he found he couldn't. Finally I did get him into the garden yard, when he remembered his daughter had said he was needed elsewhere. He never did get into the garden. As a result they were poorly recorded as current records show. I once heard him introducing himself, 'Ramsbottom, or tup's arse, if you prefer'.

The lake and its fauna caused trouble. The only suitable person was a woman. Women were then not allowed in the garden when the Queen was in residence, not even Mrs Nutbeam. Could we find someone else. We persisted and she was let in, once. What of the fish? Maxwell Knight prided himself as an angler. So, four of us set out, two in a boat, and caught nothing.

The vole story may be retold, although the record is now discredited, 'when in doubt, leave out'. Peter Crowcroft from the Museum was a specialist in such creatures. He and I were in the rough behind the Long Border, coming from opposite directions, when we exclaimed, almost together, 'a vole'. I could have been wrong, but hardly he. There is no other claim.

Since we were rarely in the garden at dusk, we had not noticed any bats. Yet they were known close by. So, I got put in the papers 'has anyone seen a bat in the garden?' We still don't know which species of pipistrelle we have.

We were not allowed to publicise our activities. If I wanted to send anything out I first obtained the permission of the Press Office. It was the same with publication of our results. They wanted some obscure journal, and finally agreed to the *Proceedings and Transactions of the South London Entomological and Natural History Society*. When it did appear there, nothing was said in public.

They took over this business, including the voluminous index. Three copies were bound specially, not so nicely as I would have wished. One went to the Queen, who has it in the library at Windsor, one went to Fred and the other to me. Each was signed by all the main contributors.

After a while there was a change of attitude about publicity. I was rung when I was in Scotland. The BBC Natural History Unit at Bristol had at last obtained permission for a broadcast. Could I come and run it before someone else pipped in. I could not, but managed to come shortly after. Photographs were, still are, strictly forbidden. I was eventually allowed to, and put the results in a special album, which has since vanished, a record we could have used. The BBC were permitted to bring a photographer in to record us sitting by the Lake. But all his photos failed.

Only one of the three TV programmes was entirely filmed there. That was in early summer; a second was due to show the garden later on. When I enquired when this would take place, they said they had run out of funds. Even so, the one was reasonably successful and was repeated several times. I have a tape of it.

When it was at last over, the Queen said we could continue our researches. This valuable chance was taken up by the bird and the moth people, and by me. Armed with a letter showing the Queen's permission for us to continue to work in the garden, we used to be let in by the Head Gardener (who had a cottage adjoining). In the course of taking specialists around, I learnt various scraps of natural history, such as on scale insects.

I thus continued to visit the garden and kept in close touch with Fred and his successors. When the court moved to Balmoral in August, the North Terrace, by the Queen's part of the Palace, still had the gravel kept clear. I had noticed however that birds were being fed from an upstairs window. So I arranged with Fred to leave the gravel uncleared until the Court returned. I then collected promising seedlings and grew them on in a tray until they could be expertly identified, usually by Eric Clement. One proved to be the only known record, and still is.

In those days the team met to discuss and plan in the ICI building opposite. Bill Bristow was a senior official. We ate our sandwich suppers at the same time. For the second survey Mark Lane arranged for us to use a meeting room in the Palace, where he provided us with coffee and biscuits. One of the meetings was on my birthday, when Mark surprised me by producing from the kitchens a special cake.

The second survey started after Mark had suggested it to the Queen, who readily agreed. In fact this threw an unexpected responsibility on me because apart from the Royal family I now seem to be the only person who knew the garden forty years ago.

This time the LNHS came fully into it, helped by its then President, Colin Bowlton who undertook all the administration. I hope that members of the team here tonight may be able to add some comments.

I shall not mention here the facts already in the previous survey, nor others that appear in the new one. But we have collected a fund of fresh information, not seen in print before. All the illustrations have been specially obtained: none are copied from other books. Some have never been published before. Puzzles remain. One is the history of the contorted Chinese chestnut by the Lake, although we have found a photograph taken seventy-five years ago, when it was even then much the same. The nuts all abort. How did it get this curious shape?

Then, on the OS maps of 1861 and 1894 are two dots denoting the sites, in and near the Arboretum, of a 'Gymnasium Pole' and a 'Swing Box'. What were these? Two unsolved puzzles remain in the garden, where did two introduced species come from, well established for over forty years? Both are umbellifers.

Golden chervil, excellent for a wild garden, and better than our own cow parsley, which is about too. The other is the deeply entrenched hogweed *Heracleum*, which no one has been able to put a name to. But it should soon receive one. There is another new name for a flowering plant in the garden. For many years there have been two Norway maples with yellow/golden foliage. They had been dubbed 'Aureum', but there is no such name, and no record where these came from. So, next year it is likely to be published, doubly appropriate as 'Golden Jubilee'.

Naturally Elinor Wiltshire and I were chiefly concerned with wild flowers. How on earth did some of them get there? After I had found by The Lake the first orchid known in central London, Mark Lane showed it to the Queen. It was a dowdy spotted. I wonder what she privately thought, knowing better hot-house sorts.

However, on one occasion, walking with Mark on The Mound, I picked up a freshly dead bird. At first I took it to be a sparrowhawk. But it was so large, was it perhaps a goshawk? But Roy Sanderson said no: it was a female sparrowhawk. How many of us have held one in our hand and not just flashing by?

You are now due to see some of Mark's photos. He has intentionally taken them at different times of the year. All that is lacking is the garden under snow. Last winter my garden in Kent was a frozen paradise. I rang him at eight o'clock to take advantage of it, but already the snow was melting in warmer London.

Sometimes I would meet a pack of corgis being exercised by a page. Occasionally one or two would detach themselves and try to follow me. One time I was surprised to see the pack by the lower path near The Yard. I remarked to a gardener that they seemed not to be following a page. The reply was that that was the Queen going round Clock Tree Corner. I wish I had seen her sooner to point out a fine example of Mark's enterprising bedding.

When the Queen is in the Palace, in general, we avoid the part of the garden nearest her rooms. One day when she had just opened Parliament, we knew she had another engagement at the time. We expected she would want a rest in between. I was crossing the main lawn below the West Terrace with Lord Ridley, the Lord Steward and Mark Lane, when Mark exclaimed 'Isn't that the Queen by the Lake?' I could not see clearly that far, but doubted it. Shortly after we turned a corner and there she was coming towards us for a friendly meeting.

On another occasion we met John Major. Neither Mark nor I knew he came in, but there he was with his detectives. He proved affable, but no plantsman.

Here the text ends rather abruptly, not, I feel, as David would have finished had he been here. C.B.

Trees of the 1860s in Hyde Park and Kensington Gardens

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‘Hyde Park and Kensington Gardens. Remarkable trees of rare oaks, maples and ash and many other species’ (Mitchell 1994: 402)

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Abstract

The development of tree cover in Hyde Park and Kensington Gardens, particularly during the Victorian period, is briefly outlined. Some of the finest and most unusual specimens appear to date back to the 1860s. William Cowper, who was First Commissioner of Works from 1860 to 1866, is shown to have been the principal introducer of this diversity.

Introduction

For more than eighty years the unusual old trees in these parks, Kensington Gardens in particular, have attracted the attention of interested observers. Among these was Angus Duncan Webster, superintendent of Regent’s Park from 1896 to 1920, who describes many of them in his book *London trees* (Webster 1920). During the 1950s Maynard Greville (1955) listed some notable specimens, and in the 1970s and 1980s many were recorded by Alan Mitchell, whose archive is in the care of The Tree Register and is being updated. From such material it is possible to trace the history and fate of some remarkable old trees. The number of survivors steadily diminishes, but enough remain to inspire curiosity as to their origins. Measurements, and clues such as associated structures or other features, suggest that many unusual species were planted as long as 140 years ago, during the 1860s. The documentary evidence of work-books, minute-books, correspondence, gardening journals, the columns of *The Times*, and other publications, supports this estimate, and illustrates the contribution of that period to the parks of today. An attempt is made here to summarize it.

Background

Hyde Park and Kensington Gardens lie on a substrate of London Clay, with layers of river terrace gravels from a time when the level of the Thames was much higher. ‘Woodland is rare on these gravels’ (Burton 1983), so natural

coverage by trees would have been patchy when these lands were first enclosed. From 1066 the area was owned by the monks of Westminster Abbey until appropriated by Henry VIII in 1536 as a hunting ground. Under James I it became a centre for fashionable gatherings, and Charles I opened it to the public.

During the Commonwealth period, in November 1652, the House of Commons resolved that Hyde Park should be sold for ready money, and it was disposed of in three lots. 'From the prices paid for the wood on the different lots, it may be inferred that the north-western parts of the park . . . were thickly wooded' (Larwood 1881). Although the new owners imposed entrance charges, the park remained as popular as ever, and there does not seem to have been any serious tree clearance during this period. On the restoration of the monarchy in 1660 these sales were annulled.

The creation of Kensington Gardens

Hyde Park was radically changed in 1728, when George II settled in Kensington Palace with his wife Caroline. Although this had been a royal residence since 1689, its garden area was limited and outdated in style, so the queen arranged the acquisition of the western half of Hyde Park to form Kensington Gardens. The Serpentine and Round Pond were created, and stately avenues were planted to the designs of Charles Bridgeman, the royal gardener. When in 1760 George III became king and transferred the royal residence to Buckingham Palace, the Gardens passed into limited public use and the avenues, no longer fashionable, deteriorated.

By the beginning of the nineteenth century John Nash, with the encouragement of the Prince Regent, was developing his grandiose plans for London. These included relandscaping St James's Park, and replacing the farms of Marylebone Park with a luxurious residential enclave to be known as The Regent's Park. Hyde Park and Kensington Gardens remained open to Londoners in general, as was confirmed by 'an express command from His Majesty [George IV], whose earnest desire it was that the whole range and extent of the parks [Hyde Park and Kensington Gardens] should be thrown open for the gratification and enjoyment of the public' (Commissioners of Woods, etc. 1826). The public in return became fiercely protective of 'their' parks, and attempts to alter any aspect, even by felling dangerous trees, were liable to meet with ferocious opposition. This led to timidity on the part of the authorities and to stagnation in tree management.

Administration of the parks

During the eighteenth century, the Crown's 'Woods, Forests, Parks and Chases' had been administered by Surveyors-General, but from 1810 they were combined with Land Revenues under a Board of Commissioners. Day-to-day business relating to the parks was handled by Alexander Milne, permanent secretary from 1810 to 1834, when he became a Commissioner himself, serving until 1850.

As for the royal gardens, control for a long period was almost entirely in the hands of William Townsend Aiton (1766–1849). He had, in 1793, become superintendent of the royal gardens at Kew in succession to his father, and in 1804 was put in charge of St James's Palace and Kensington Palace gardens on the death of William Forsyth. During the 1820s he was commissioned to landscape the garden of Buckingham Palace and to maintain it thereafter.

However, in 1830, on the death of George IV, John Claudius Loudon (1783–1843), tireless horticultural campaigner, reported with relief that the monopoly of royal gardens which Aiton had enjoyed 'has been very properly broken down' and limited to Kew. 'As the progress of Buckingham Palace has been stopped, the present king [William III] not intending to live there, it is probable that no gardener will be appointed' (Loudon 1830). So ended an unwieldy cycle of patronage.

This was a significant historical period. The industrial revolution was flourishing, the population growing and cities expanding, the empire spreading, and a new middle class becoming rich. In 1832 the Duke of Wellington's Tory government fell, to be replaced by a liberal Whig regime, and the first steps were taken towards electoral reform. The Board was reconstituted as Commissioners of Woods, Forests, Land Revenues, Works and Buildings, and soon delegated some responsibilities by appointing a superintendent to manage the central royal parks.

He was Scots-born John Mann, then in his middle thirties, a surveyor by profession, and probably already in Crown service. One of his first tasks was to report on the state of St James's Park, Green Park, Hyde Park and Kensington Gardens, and in particular on the trees. On 22 August 1834 he submitted his conclusions. He found that in Hyde Park they were 'in a bad state of decline and a considerable deal of planting will be required', while in Kensington Gardens the timber had been 'totally neglected as regards thinning and pruning for at least fifty years previous to the year 1832 . . . The general appearance of the Gardens is much improved by the thinning they have received during the last two years. Some of the trees which have been partially relieved from the pressure of those which have been removed now begin to furnish themselves with foliage. I am of opinion that if a fourth part of the trees now remaining were taken down and others planted in their stead, as a succession, it would considerably improve the appearance of the Gardens, as well as admit a more free circulation of air, and by properly attending to the thinning and planting, a greater variety of trees might be introduced' (WORK 3/11).

Loudon (1834) agreed enthusiastically with the latter view. 'We never speak of these gardens without being ready to exclaim, How delightful and instructive they might be made, by the addition of a great variety of American and other exotic trees and shrubs! . . . Even in Hyde Park, where a number of trees are now planting, no kinds are made use of but the very commonest sorts; and this while in many of the nurseries there are hundreds and thousands of large forest trees, choice oaks, acers, horse chestnuts, sweet chestnuts, ashes, birches, purple beeches, American limes, liquidambars, tulip trees, gleditschias, robinias, deciduous cypress, cedars, pines, firs, and dozens of other genera, so large, that in a year or two, if not sold, they will have to be burnt'.

Unfortunately, John Mann's desires to thin and diversify were frustrated by a bureaucratic system which required even the most trivial action to be authorized by the Commissioners. Three years on, Loudon (1837) observed a 'mass of common forest trees' awaiting planting in Kensington Gardens. He warned that 'The Scolytus destructor [Dutch elm disease] is making extensive ravages on the elms . . . Nine tenths of the remaining elms in the gardens will, in all probability, also fall in a year or two'. In his opinion, the best practical method to limit the ravages of such an attack was 'to introduce a number of different species of trees, natives of different countries and climates'.

The park trees at that time consisted largely of *Ulmus procera* common elms, although the advance of disease and other problems were leading to their replacement by *Platanus* × *hispanica* planes. *Castanea sativa* sweet chestnuts and *Tilia* spp. limes were used for avenues, but in general a very limited range of common tree species was planted.

Plantations and avenues

'In good old times, when our varieties of trees were comparative scanty . . . parks were laid out in what is called the picturesque style . . . more especially as regards planting, which was either in the form of massive breadths of plantation, or in the shape of noble avenues of trees,' wrote garden designer Joseph Newton (1870). In plantations, which sometimes filled the spaces created by the layout of avenues, young trees were often crowded, according to traditional methods

for production of straight poles. They needed to be thinned out as they grew but in the parks were often neglected, giving rise later to serious difficulties. Early in his career, Loudon (1818) had foreseen these when he wrote of a plantation in Kensington Gardens: 'Why are the masses not thinned? . . . they resemble a giant crop of hemp, naked and shapeless stems, all leaning one way'. Twenty years later (Loudon 1839), he found the same methods still in use there and in Hyde Park, and commented: 'This mode of planting appears to us like going back a hundred years in point of taste and of practical knowledge'. He added that in some cases the trees, though from five to ten feet in height, were put in at the rate of 3,000–4,000 trees per acre.

Neglected avenues were another problem which confronted John Mann — a century after planting, many were now well past their best. Their restoration was one of his early successes. In his book *Royal parks and gardens of London* Nathan Cole (1877) wrote: 'The fine lines of trees that form the avenues running from the round pond to the east, north-east and south-east were planted by the late Mr Mann about half a century ago. The old trees had then been decaying for some years, making gaps that young trees could not fill; and as there was space sufficient to admit a line of young trees being planted in front of the old, this was done, and the result is that there are groves of half-grown and flourishing specimens, the older and taller trees in the rear towering above them, and blending their foliage with them in a very pleasing manner'.

The quantity of dead trees in the parks was a matter of constant concern. For instance, in August 1836 John Mann had to seek authorization from the Commissioners to take down 431 specimens, of which 397 were elms (WORK 3/11). Disposal of such timber was by tender, ensuring that the best possible return was obtained.

Political First Commissioners, 1851

In 1851 the various sections of the Board were again rearranged. The influential office of First Commissioner became a political one, changing according to the party in power, the other Commissioners being permanent officials. Few First Commissioners chose to remain in office more than a year or two. They were responsible to Parliament for park issues and had to respond to criticisms of such controversial actions as tree-felling or thinning. This could be an uncomfortable task, as Sir Benjamin Hall found in 1856, although the *Gardeners' Chronicle* (Anon. 1856) defended him vigorously against attacks in *The Times*, according to which 'Sir Benjamin Hall is a ruthless destroyer, before whom, like another Attila, young and old are alike condemned to the axe . . . What are the facts? Mr Mann, the Superintendent of Hyde Park, who is doing his work in a very praiseworthy manner, has stated that the trees which have been cut down were old rotten elms which it was necessary to remove'.

The Kew nursery

The replacement of trees lost through disease, decay and felling required a regular supply of nursery stock, *Ulmus procera* common elm for the most part, and increasingly *Platanus* × *hispanica* London planes. To ensure availability, Alfred Austin, then secretary of the Office of Works, wrote on 6 December 1855 to Sir William Hooker, director of the Royal Botanic Gardens at Kew, regarding a nursery which it was proposed 'to establish at Kew for rearing plants and trees for the service of the Royal parks and gardens'. An estimate was requested. Hooker replied that four acres would be available at a cost of £25 for 'breaking up', and two full-time gardeners would cost fourteen shillings a week each (RBG:1). These modest amounts were agreed, but 'Mr Mann will have another interview with you relative to the planting of this site' (RBG:2). As a result of further consultations, the Treasury on 6 February 1856 'sanctioned an expenditure of £800 for the foundation of the proposed nursery in the grounds

annexed to Kew Palace' (RBG:4). On 17 November the same year the Treasury sanctioned 'an additional outlay of £800 on the remaining two acres of Kew Palace gardens, set apart as a nursery ground for raising trees for the Metropolitan parks' (RBG:6).

On 10 September 1857 an order was sent from the Office of Works to Hooker for '2,000 planes 4 to 7 feet in height to be reared in the plantations under his charge, for the purpose of keeping the existing Park avenues in order, and forming new avenues' (RBG:10). On 13 October 1858 John Mann reported to the Office of Works that 'about 1,000 planes and 500 English elms will be required for making good the avenues in St James's, Hyde Park and Kensington Gardens. I beg therefore to suggest that Sir W. Hooker be instructed to grant permission for these trees to be selected, at the proper season, from the nursery established for the growth of trees for the Metropolitan parks at Kew' (WORK 3/20). However, by 11 November 1859 the message to Hooker was very different. 'Mr Mann has reported that it will not be necessary for him to procure any trees or shrubs from their nurseries this season' (RBG:20). It was becoming clear that the parks could not absorb the output of this new source.

William Francis Cowper — tree-planting reformer

In February 1860 William Francis Cowper (1811–1888) (Figure 1) was appointed First Commissioner. He had been a Member of Parliament for twenty-five years, had held high positions in government, including health and education, and was personally committed to the protection of open spaces. In regard to park trees his influence was soon apparent.



FIGURE 1. William Francis Cowper (1811–1888).

Photo courtesy of Hertford Museum

On 30 May 1860 he sent a request to Hooker 'that you will be good enough to look out for 420 limes which will be required for planting, in the autumn, an avenue on the north side of Hyde Park' — not less than nine feet high (RBG: 23). Perhaps Kew could not deliver these, as by September John Mann was looking for '450 of the best and largest limes you can supply' from the Waterer & Godfrey nursery at Woking (WORK 3/21).

On 23 November 1860 Alfred Austin informed John Mann that 12,000 planes and 22,000 elms had been reared at Kew — how many did he want for planting in the parks and gardens? Five hundred, which he wished to be permitted to select himself, was the reply on 26 November (WORK 3/21).

Cowper had in mind a more exotic range. Also on 26 November, he had instructions sent to John Mann that the following trees should be planted 'at such sites in Hyde Park as shall be pointed out to you by him': two *Acer eriocarpum* [*A. saccharinum*] silver maple, two *Acer platanoides* Norway maple, two *Juglans nigra* black walnut, and two *Liriodendron tulipifera* tulip tree.

On 27 November John Mann wrote again to Alfred Austin. 'In accordance with personal instructions from the First Commissioner, I beg to transmit herewith a list of trees which (in my opinion) it would be desirable to propagate in the nursery at Kew for the use of the parks and gardens, in lieu of the large quantity of elms and planes which are now raised there. If a moderate quantity of each sort were grown, the space now used for nursery purposes would suffice for rearing all the kinds mentioned in the accompanying list, and a sufficient quantity of planes and elms at the same time.' The list, with original nomenclature, is as follows (current forms and English names, when clear, are added in square brackets):

Acer striatum [*A. pennsylvanicum* moose-bark]
Acer macrophyllum [Oregon maple]
Acer platanoides [Norway maple]
Acer obtusatum [*A. opalus* var. *obtusatum* Italian maple]
Aesculus hippocastanum [horse chestnut, with *rosea* and another form]
Carpinus betulus [hornbeam]
Carya amara [*C. cordiformis* bitternut]
Carya tomentosa [mockernut]
Carya alba [*C. tomentosa*]
Carya sulcata [*C. laciniosa* big shellbark]
Carya porcina [*C. glabra* pignut]
Carya microcarpa
Fagus sylvatica [beech]
Fagus sylvatica 'Purpurea' [purple beech]
Fraxinus excelsior [common ash]
Fraxinus americana [white ash]
Fraxinus sambucifolia
Juglans nigra [black walnut]
Juglans regia [common walnut]
Liriodendron tulipifera [tulip tree]
Planera richardii [*Zelkova carpinifolia* Caucasian elm]
Robinia plena acacia [*R. pseudoacacia* false acacia]
Robinia sophorifolia
Robinia macrophylla [*R. hispida* 'Macrophylla']
Robinia microphylla [*R. pseudoacacia* 'Microphylla']
Robinia elegans
Tilia europaea [*T. × europaea* common lime]
Tilia platyphyllos [broad-leaved lime]
Tilia intermedia [*T. × europaea*]
Tilia rubra [*T. platyphyllos* 'Rubra' red-twigged lime]
Tilia americana [American lime]
Tilia pubescens
Ulmus stricta, *U. cornubiensis* [*U. minor* var. *cornubiensis* Cornish elm]
(WORK 3/21).

On 10 December 1860 Austin informed Hooker 'that the future wants of the Metropolitan parks appear likely to fall so short of the present supply of elms, etc. in the Kew nursery, that the First Commissioner considers that you had better dispose otherwise of a large proportion of its contents, and he wishes you to rear, for future planting in the parks, a few of such trees as may be expected to thrive in those situations' (RBG:24). A list similar to the above was enclosed, with the following additional items:

Acer eriocarpum [*A. saccharinum* silver maple]
Acer rubrum [red maple]
Acer pseudoplatanus [sycamore]
 Fulham oaks, Lucombe oaks and Turkey oaks.

On 31 December 1860 Cowper wrote to John Mann: 'I shall want to plant a few more trees among the planes between the Reservoir and the Marble Arch . . . I think I should prefer copper beech and some early-leaved tree like *Acer eriocarpum* [*A. saccharinum* silver maple], and some exotic thorns' (WORK 3/21).

Five years later, on 12 January 1865, John Mann wrote to the Office of Works requesting authority to select the following trees and shrubs from the Kew nursery:

200 *Platanus orientalis* oriental plane
 200 limes
 300 *Crataegus* thorns, various
 300 *Acer* maples, various
 200 *Aucuba*
 400 hollies, green and variegated
 100 *Ailanthus* tree of heaven
 50 *Mespilus smithii* medlar
 100 *Populus alba* white poplar (WORK 3/24:5).

However, the problem of over-production of elms at Kew remained unsolved. On 24 January 1865 Austin wrote to Hooker that the First Commissioner 'is of opinion that half of the 17,000 elms referred to in your report of the 12th inst. will not be required for use in the Metropolitan parks', and would be glad to know how they can be disposed of (RBG:45). By 14 February Hooker had been authorised to sell 10,000 of them (RBG:47) and promptly contacted a Covent Garden auctioneer. On 22 February a message was received from the latter: 'I propose coming down to Kew by the 9.30 train tomorrow (Thursday morning) to make catalogues of elms' (RBG:50).

The nursery continued to operate until 1881.

Departure of William Cowper and death of John Mann

William Cowper's term as First Commissioner, an exceptionally long one, ended in 1866 on the fall of the Whig government and the return of the Tories. In 1865, through his mother's second marriage to the childless Lord Palmerston, he inherited large properties and added Palmerston's family name to his own, becoming Cowper-Temple. In 1880 he was ennobled as Baron Mount-Temple.

His obituary in *The Times* by Robert Hunter (1888), himself a notable campaigner for open spaces, paid tribute to Cowper's struggles to protect commons, save Epping Forest, maintain the Thames as an amenity, and convert disused burial grounds into public gardens. *The Hertfordshire Mercury* (Anon. 1888) noted that during Mr Cowper's tenure as First Commissioner the parks were greatly improved.

The enthusiasm and energy of William Cowper were clearly a great stimulus to John Mann, already well into his sixties at the start of this period. At last he

was able to carry out the diversification of tree species which he had vainly recommended back in 1834, and also to display his other skills. Cowper introduced a striking 'gardenesque' feature to Hyde Park by commissioning William Nesfield and his son Markham to create a colourful promenade from Hyde Park Corner to Marble Arch. 'Indeed, when the flowers are at their best, the view is singularly glorious, the mixture of park scenery, picturesque trees and garden producing a variety that may be set in friendly competition with the more stately splendour of the Champs Elysées . . . it seems almost a wonder how Mr Mann contrives to grow such beautiful flowers amidst the clouds of dust which are sometimes showered upon them' (Anon. 1865).

During the summer following Cowper's departure, John Mann's health began to fail. In June he was granted a fortnight's sick leave, later increased to six weeks. Lord John Manners, then First Commissioner, censured him over the alleged unauthorized removal during his absence of two old elm trees near the Albert Memorial. He replied with a dignified letter of explanation.

The next First Commissioner was Austen Layard. Anthony Waterer wrote to John Mann on 30 September 1869: 'When Mr Layard was here he expressed a wish to have some, as he called them, Yellow Chestnuts *Pavia* [*Aesculus*] *flava*. I have no order to send any but as I have some very nice trees I make you the first offer. They vary from 5/- to 10/6 each . . . If you care to have them I will reserve you the best trees before we start pulling them about. I hope you are better than when I last heard of you' (WORK 3/26). Mann got his assistant to accept this offer.

Mann died at his home in Kensington Gardens on 4 February 1871, aged 74. *The Gardener's Magazine* (Anon. 1871) wrote: 'This intelligence will create a feeling of profound regret amongst horticulturalists of the metropolis, to very many of whom Mr Mann was known as a genial man, and a thorough master of his business. There may be differences of opinion as to the propriety of developing the gardenesque to the extent that it has been carried during many years past in Hyde Park, but there can be no difference of opinion on two important points, namely, that what was done was well done, and that Mr Mann was a faithful and most assiduous public servant.'

Park trees in decline

John Mann was succeeded as superintendent of the royal parks by John Gibson, then about sixty years old and noted for his successful creation of Battersea Park. He was an enthusiast for the gardenesque — at the beginning of each year park records show orders for long lists of bedding plant seeds. During this period, an article in *The Garden* (Anon. 1874b: 362) commented: 'The roads, walks, shrubberies and flower-beds of Kensington Gardens and Hyde Park are kept, on the whole, in pretty good order . . . The old trees, the pride and joy of the expanse, are, to all appearances, allowed to rot, and fall one by one.'

John Gibson retired in 1874 and died the following year. As if to emphasise the end of an era, the 'pretty antique lodge' at the Palace entrance to Kensington Gardens, which had been John Mann's home for nearly twenty years, and Gibson's for a short period, was bought in 1874 by the notorious speculator Albert Grant and demolished. Grant was building a grandiose mansion (known locally as 'swindle villa') on the south side of Kensington Road, and wanted to have a clear view from its windows of Kensington Palace. However, Grant soon lost all his money and his mansion was demolished in 1882, before he ever lived in it (he was the inspiration for 'Melmotte' in Anthony Trollope's *The way we live now*).

Brief though Gibson's reign had been, it had initiated a trend which downgraded tree planting. This was continued by his son, J.T. Gibson, who was superintendent for several years from 1875, and attracted unfavourable notice in *The Garden*. 'There is no attention paid to annual planting of fine trees and

shrubs in our parks, parks which, on the other hand, are having a mad race with each other in the building of villages of glass houses for the subtropical and other plants which make up the evanescent bedding in autumn' (Anon. 1877).

The consequences of mismanagement and neglect of the Kensington Gardens trees were well publicised. *The Garden* (Anon. 1873) wrote that 'the great central masses of wood exhibit only bare poles, with a few straggling branches and withering top-shoots, several being broken down and decaying from having been planted too closely'. The following year the *Gardeners' Chronicle* (Anon. 1874a) devoted an editorial to the subject. The most casual visitor 'cannot but have wondered at the enormous and ever-increasing number of dead and dying trees to be seen almost everywhere . . . The spectacle from Kensington Palace, of a forest of dead-topped trees, is anything but a pleasant one'. At the same time, smart new housing was spreading through Bayswater and Kensington, and the decaying urban woodland was seen by some residents as a romantic feature, an asset to be fiercely defended if threatened. Angry letters were sent to *The Times* when attempts were made to remove dangerous trees, much less to carry out methodical thinning, felling and replanting.

Four years later, the *Gardeners' Chronicle* attacked again. 'It is a scandalous bit of maladministration to expend so much money and labour over the miles of roads and vulgar flower-beds, and leave the trees to steadily progressing ruin . . . But before all it is necessary that the supreme management of the parks be entrusted to some competent official . . . The present superintendents are indeed competent men, but they cannot and dare not act except under the orders of superior officers, who are, as it would seem, supremely ignorant of the way in which a park or garden should be managed, plantations preserved, and roads made' (Anon. 1878).

Significantly, the following year management of the parks was strengthened by the appointment of Col. M. J. Wheatley to the new post of Bailiff, intermediate between superintendents and Commissioners. That autumn, a cautious start was made towards clearance of the troublesome plantations. On 8 November a small paragraph appeared in the *Gardener's Magazine*: 'The trees in Kensington Gardens are being thinned, a business that has been too long neglected. The work is being done quietly and at early hours, that it may not occasion a clamour of opposition' (Anon. 1879).

Large-scale fellings in Kensington Gardens, 1880

A much more drastic operation was planned for the following autumn, and a violent public reaction was greatly feared. Elaborate precautions were taken. The then First Commissioner, William Patrick Adam, wrote on 16 July to the Lords of the Treasury as follows:

'I regret to have to report to Your Lordships that the state of the trees in Kensington Gardens, which for many years has been deteriorating, has now become so bad that it is necessary that vigorous measures should be adopted in order to preserve one of the finest pleasure grounds in the Kingdom. The fault is to be ascribed to the want of proper thinning some seventy or eighty years ago. Successive First Commissioners of Works have had their attention drawn to this matter, but hitherto, although various reports have been made, it has been felt that in a matter which will necessarily provoke much criticism and excite great diversity of opinion, it would be better to proceed with extreme caution.

'The public will doubtless view with great jealousy any disturbance of the Gardens on a large scale, and I should prefer, before taking any remedial measures, to have my hand strengthened by the appointment of a Committee of experts who should make a report to Your Lordships, and if necessary take the pleasure of the Queen, as to taking an action which can no longer be delayed.

'I should propose therefore to associate with myself and the Secretary to this Department a Committee of gentlemen composed as follows:

The late First Commissioner of Works

Sir Joseph Hooker as botanist

Mr J. Clutton as forester

Mr Thomas as landscape gardener' (WORK 3/28).

Soon all the precautions were in place and in October 1880 comprehensive felling began.

Plantations north of the Round Pond

The principal targets for clearance were two areas north of the Round Pond. One was the historic triangle of *Pinus sylvestris* Scots pine near Porchester Gate on the Bayswater Road — 'Fir Quarter' on a c.1784 plan of Kensington Gardens in the British Library (K.Top XXVIII 10d.i.). On a plan of 1840 in the Public Record Office (WORK 32/26), where trees are depicted more or less realistically, those in the Fir Quarter are distinctively dark green and spikey. Edward Kemp (1851) mentions that 'along by the northern boundary of the gardens is a large mass of Scotch firs', surely Matthew Arnold's 'black-crowned, red-boled pine-trees' in his *Lines written in Kensington Gardens* (1852). A couple of decades later, an article in *The Garden* refers to this site as 'a picturesque grove of Scotch Firs, their tall bare stems and flat heads looking like those of so many Stone Pines. They are about twenty-one in number, but six are dead and six more are in a bad way' (Anon. 1874*b*).

The other was a much larger area of dense woodland, covering more than fourteen acres. Some time in the middle 1870s, the naturalist W. H. Hudson (1898) had seen this as 'a vast wooded place . . . like a wood where the trees were self-planted, and grew close together in charming disorder, reaching a height of about one hundred feet or more.' 'T.H.H.', writing in *The Builder* and reprinted in *The Garden* (H. 1877), was more realistic, pointing out that 'upon all the open spaces of the whole area, stand trees of nearly 200 years' growth, as at first planted; now at great altitude, many of them bare poles, many dead at the top, and nearly all in deadly conflict for freedom of "branchage". When we examine the position and space left for each tree, we find 8 ft. and 10 ft. to be the ordinary interval; but in many instances these giant-trees stand at intervals of only 5 ft., 4ft. or even 3 ft. apart!'

On 9 October, a *Times* letter by 'T.C.F.', expressing horror at the scene of devastation, was reprinted in the *Gardener's Magazine* (F. 1880). 'For 400 to 500 yards in a line from Uxbridge [Bayswater] Road to the Round Pond in Kensington Gardens, by a breadth of about 200 yards, the trees, with an odd one here and there left standing as an exception, are all down. I never saw such a shameful and melancholy exhibition in my life . . . As nearly as I could tell, about 1,000 trees are thus down.' The editor of the *Gardener's Magazine* comments: 'What is being done is the long-delayed thinning and planting that have been urged as needful by a hundred pens. The best advice has been sought and is now being acted on, and the objections of people who know nothing of forestry will no longer prevail to prevent it.'

New planting and a lost tree

These areas were restored and replanted as quickly as possible. By 1885, the *Gardeners' Chronicle* was pleased to report: 'The young trees, which have been judiciously planted in groups of limited numbers, with sufficient open spaces intervening, are thriving well . . . It is gratifying to see that in the selection of the young trees there has been some departure from the elms of the past, and the never-ending planes of the present generation of London tree planters. Yet still more variety might with advantage have been introduced, and in place of horse chestnuts we would have used more sycamores' (Anon. 1885).

Loudon's home for many years had been in Porchester Terrace, close to Kensington Gardens, and in 1881 an admirer, Mr D. Wooster, obtained permission to plant a memorial tree near Porchester Gate. The label was inscribed: '*Salisburia adiantifolia* or Ginkgo tree. Native of Japan. Introduced 1754. In Memoriam John Claudius Loudon. Obit. December 14th 1843'. Sadly, by August 1887 this tree was reported 'quite dead' and removed (WORK 3/31).

Correspondence in *The Times* at the end of the hot summer of 1893 drew attention to the effects of increasing air pollution and urban warmth on London trees. 'The trees which have suffered most are one native species — the wych elm, and two exotic species — horse chestnut and the lime'. Planes had done fairly well, and aspens and poplars had not suffered at all. *Ailanthus glandulosa* was in splendid foliage, and *Robinia pseudoacacia* had proved that it could not be excelled for planting in towns (Herbert Maxwell 1893). Another correspondent, William Paul (1893), agreed that the foregoing species were 'proved London trees', commenting that 'Many trees which flourished in London some thirty or more years ago no longer thrive there'.

Tree-planting in the city, including in the parks, thus tended to become confined to a very limited range of species, a trend which long continued. Webster (1920) wrote: 'During the past five-and-twenty years the London plane has been planted to the exclusion of almost every other species'. He then added, 'on the other hand, it is surprising what a variety of the less common kinds are to be found in various parts of the Metropolis, and as many of these are full-grown specimens the inference to be drawn is obvious'.

Surviving trees of the 1860s?

Despite the events mentioned above, and those of a further hundred years, fine trees survive from the rich assortment introduced to these parks in the 1860s. Some of the more interesting of these are indicated below.

The most conspicuous are three groups of various *Fraxinus* ash species, one in Kensington Gardens and two in Hyde Park. For speedy propagation, these trees were grafted at around 1.5 m or more, and now attract attention because the 'joins' have become distorted with age. The Kensington Gardens group lies half-way between the Albert Memorial and the Round Pond, and consists of a *Fraxinus americana* white ash, a *F. ornus* manna ash (Figure 2) and three *F. pennsylvanica* red/green ash. Joseph Newton (1870) wrote of this group: 'One of the best masses of this tree with which I am acquainted is in Kensington Gardens, not far from the late Prince Consort's monument, and when seen in full leaf this group has a most interesting appearance, owing to the great variety of foliage which it presents'. These trees are now exceptionally tall.



FIGURE 2. Base of grafted manna ash, in ring of ash species, Hyde Park, February 2002.

Photo: Elinor Wiltshire

The two groups in Hyde Park are similar in character to the above, but the trees have not grown so luxuriantly. They are on the grassy slope above the Serpentine boat-stage, a more exposed site. The lower group consists of four *Fraxinus americana* and five *F. ornus*, and the upper of two *F. americana* and six *F. ornus*.

North of the Round Pond in Kensington Gardens are other unfamiliar old ashes, including three specimens of the rare *Fraxinus angustifolia* 'Veltheimii' (Figure 3). The history of this form is obscure. There are two specimens at Kew which came from Germany in 1889 — Bean (1970–88) considered the Kensington Gardens trees to be older. One of these stands on an extraordinary peg-like graft, and next to it is a majestic *F. excelsior* 'Diversifolia', mentioned by Mitchell (1994). Near this site is an *Acer opalus* Italian maple, with a group of five *A. platanoides* 'Cucullatum', a form of Norway maple.

The Flower Walk in Kensington Gardens was established in 1843 to display flowering plants, 'so that gentlemen go direct from these gardens to the nurseries, with their lists made out from their own inspection' (Anon. 1843), and became a setting for uncommon trees also. There are still several which probably date from the 1860s, among them a *Carya cordiformis* bitternut (opposite the well-known *Umbellularia californica* headache tree), and an *Aesculus flava* yellow buckeye towards the western end of the walk. The latter could be one of the batch referred to earlier, which was ordered from Waterer's nursery in 1869.

Following the building in 1860 of the Italian Garden, or Fountains, by Marlborough Gate in Kensington Gardens, the field to the west (once known as 'Bayswater') was planted with some unusual trees. This included a choice collection of oaks — later Alicia Margaret Amherst (1907) referred to this site, where 'some very good Turkey and American oaks are growing into large trees'. Several of these are still present: *Quercus bicolor* swamp white oak, *Q. petraea* sessile oak, *Q. × crenata* 'Lucombeana' Lucombe oak, as well as *Q. cerris* Turkey oaks. Other locally uncommon old trees here include *Populus canescens* grey poplar, *Acer platanoides* 'Cucullatum' and *A. rubrum* red maple.

In Hyde Park the main display area for plants and trees was the Nesfield promenade, created in 1860, which lay parallel to Park Lane and ended at Hyde Park Corner (in the region of today's Rose Garden). A description of this feature refers to the fact that the flower-beds were 'alternated with Lucombe oaks' (Anon. 1865). A single *Quercus × crenata* 'Lucombeana' remains in the area, together with a form of Turner's oak of similar vintage, the rare *Q. × turneri* 'Spencer Turner' (Wiltshire and Coombes 2001). Two other fine old trees in the Rose Garden are *Zelkova carpinifolia* Caucasian elm and *Acer saccharinum* silver maple, species which were among those selected by Cowper and Mann.



FIGURE 3. Base of rare 'Veltheimii' ash. Kensington Gardens, February 2002.

Photo: Elinor Wiltshire

Apart from specimens localized at the above sites, there are some fine individual trees which were probably planted during the 1860s. In Hyde Park an outstanding example is the magnificent *Quercus palustris* pin oak near the Police House, and possibly the *Platanus orientalis* oriental plane near Albion Gate. In Kensington Gardens the *Acer monspessulanum* Montpellier maple by the Italian Garden, the *A. campestre* field maple south of the Peter Pan enclosure and the *A. saccharinum* silver maple west of the Serpentine Gallery are candidates. The several fine examples of *Fagus sylvatica* 'Pendula' weeping beech and *Fraxinus excelsior* 'Pendula' weeping ash at various locations must also derive from this period (the age of a weeping ash in Kensington Gardens, which was severely storm damaged during 2001 and subsequently felled, was confirmed when it proved to have approximately 140 tree-rings). North of the Round Pond, a *Fagus sylvatica* common beech has a straight stem almost thirty metres tall, suggesting that it grew up in the crowded 'plantation' which once stood here (Figure 4). Though almost totally cleared in 1880, a few exceptional trees were spared — this appears to be one of them.



FIGURE 4. Straight-stemmed beech, almost 30 m tall. Kensington Gardens, February 2002.

Photo: Elinor Wiltshire

Conclusion

Following the activity of the 1860s, there was a long decline in tree-planting in Hyde Park and Kensington Gardens. It hardly kept pace with losses, and eventually failure of the elms seriously depleted the tree canopy. From 1982, detailed surveys of the tree cover have been undertaken and plans prepared for major restoration. An early set-back was the storm of 1987, which destroyed some 600 mature trees in these parks, but restoration of avenues and other areas continues. It is hoped that this will include redevelopment and expansion of arboretum elements, such as those introduced so long ago by William Cowper. Even today, in their final years, the remnants of his collection contribute a unique character to these historic parks.

Acknowledgements

Thanks are primarily due to The Royal Parks Agency, on whose archives this paper is mainly based — they are preserved in The Public Record Office at Kew. Kate Pickard, Archivist at the Royal Botanic Gardens, Kew, kindly arranged access to the correspondence relating to the Kew nursery. Files of gardening journals were consulted in the Botany Library of The Natural History Museum and I am very grateful for this facility. Files of *The Times*, Government records and other documents were consulted at The British Library. Patience Bagenal provided information about the Cowper family; Margaret Harris, Curator of Hertford Museum, helpfully supplied copies of portrait illustrations of William Cowper; and Edgar Lake contributed a copy of *The Hertfordshire Mercury* obituary. Henry Girling provided copies of extracts from Maynard Greville's London tree records. Alan Harrington, Julian Reynolds and Sylvia Reynolds kindly read this manuscript and made useful suggestions.

References

Publications

- AMHERST, A. M. 1907. *London parks and gardens*: 51. London.
- ANON. 1843. Garden Memoranda. *Gdnrs' Chron.*: 695.
- ANON. 1856. Editorial. *Gdnrs' Chron.*: 740.
- ANON. 1865. Editorial. *Gdnrs' Chron.*: 889.
- ANON. 1871. John Mann obituary. *Gdnr's Mag.*: 53.
- ANON. 1873. The trees in Kensington Gardens. *Garden, Lond.*: 366.
- ANON. 1874a. Editorial. *Gdnrs' Chron.*: 589.
- ANON. 1874b. Trees and shrubs in and near London (reprinted from *Fraser's Mag.*) *Garden, Lond.*: 362.
- ANON. 1877. Planting in Hyde Park. *Garden, Lond.*: 199.
- ANON. 1878. Editorial. *Gdnrs' Chron.*: 732.
- ANON. 1879. Kensington Gardens. *Gdnr's Mag.*: 550.
- ANON. 1885. Trees in Kensington Gardens. *Gdnrs' Chron.*: 114.
- ANON. 1888. Death of Lord Mount-Temple. *The Hertfordshire Mercury*, 20 October.
- BEAN, W. J. 1970–88. *Trees and shrubs hardy in the British Isles*. Ed. 8, 5 vols. London.
- BURTON, R. M. 1983. *Flora of the London Area*: xii. London Natural History Society, London.
- COLE, N. 1877. *Royal parks and gardens of London*: 7. London.
- COMMISSIONERS OF WOODS, etc. 1826. 5th Triennial Report: 17.
- F., T. C. 1880. Kensington Gardens (*The Times* letter quoted). *Gdnr's Mag.*: 504.
- HUDSON, W. H. 1898. *Birds in London*: 78. London.
- HUNTER, R. 1888. Lord Mount-Temple obituary. *The Times*, 18 October: 7.
- H., T. H. 1877. The trees in Kensington Gardens (reprinted from *The Builder*). *Garden, Lond.*: 405.
- KEMP, E. 1851. *The parks, gardens, etc. of London and its vicinity*: 32. London.
- LARWOOD, J. 1881. *The story of the London parks*: 31. London.
- LOUDON, J. C. 1818. Kensington Gardens (letter). *Gentleman's Mag.*: 496.
- LOUDON, J. C. 1830. The royal gardens. *Gdnr's Mag.*: 731.
- LOUDON, J. C. 1834. Kensington Gardens. *Gdnr's Mag.*: 235.
- LOUDON, J. C. 1837. Suggestions for the improvement of Kensington Gardens. *Gdnr's Mag.*: 145–146.
- LOUDON, J. C. 1839. The recent plantations in Kensington Gardens and Hyde Park. *Gdnr's Mag.*: 132.
- MAXWELL, H. 1893. London trees (letter). *The Times*, 11 September: 2.
- MITCHELL, A. 1994. *Trees of Britain and northern Europe*. HarperCollins, Hong Kong: 402.
- NEWTON, J. 1870. Planting park scenery. *Gdnrs' Chron.*: 417.
- PAUL, W. 1893. London trees (letter). *The Times*, 20 September: 2.
- WEBSTER, A. D. 1920. *London trees*: 1. London.
- WILTSHIRE, E. and COOMBES, A. J. 2001. *Quercus* × *turneri* Willd. *Lond. Nat.* **80**: 21–27.

Manuscript sources

- GREVILLE, MAYNARD. c.1955. Records of London trees. Courtesy Henry Girling.
- KENSINGTON GARDENS. c.1874. Plan of gardens. British Library K.Top XXVIII 10d.i.
- ROYAL BOTANIC GARDENS, KEW. 1855–1870. *Royal Parks — supply of trees 1855–1870* (bound volume of letters).
- ROYAL PARKS. 1834–1888. From record books series WORK 3. WORK 3/11: 1–4; WORK 3/20: 94; WORK 3/21: 124, 169–171, 180–181, 203; WORK 3/24: 5; WORK 3/26: 332; WORK 3/28: 271–272; WORK 3/31: 187–188. Public Record Office.
- ROYAL PARKS. 1840. Plan of Hyde Park and Kensington Gardens. WORK 32/26, Public Record Office.

Quercus × *turneri* ‘Spencer Turner’ — two more specimens discovered

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The rare London hybrid oak *Quercus* × *turneri* ‘Spencer Turner’ (*Q. robur* × *Q. ilex*), raised in Turner’s Essex nursery before 1776, was described in *The London Naturalist* last year (Wiltshire and Coombes 2001). At that time only four surviving specimens were known in Britain. Since then two further examples have been found by Owen Johnson in the course of recording for The Tree Register. One is in London and the other in Hertfordshire.

The London tree is located by the St Edmund’s Terrace entrance to Primrose Hill, a short distance up the slope opposite the Zoo, on the north-west side (Figure 1). Above it is Barrow Hill reservoir, which was roofed over in 1856. Along the upper boundary of the reservoir are the remnants of a once-notable line of various *Fraxinus* ash species, referred to by Webster (1920). In 1981 Mitchell measured three specimens of the rare *F. angustifolia* ‘Veltheimii’ here (Bean 1988) — now only two remain. These trees were evidently planted to screen the obtrusive new reservoir roof from the park — the ‘Spencer Turner’ oak may belong to the same period.

The latter, although an old tree which has suffered major damage in the past, continues to grow fairly well. Its dimensions are 14 m in height and 1.85 m in girth. It is thus similar in size to the ‘Spencer Turner’ specimen in Hyde Park, which is 13.75 m in height and 1.93 m in girth. As Primrose Hill is attached to Regent’s Park, and therefore under the administration of the Royal Parks, these trees could well have been obtained from the same source at the same time.

The Hertfordshire specimen is in Sawbridgeworth, in High Tree Close, a residential area but formerly part of the famous Rivers Nursery. Founded in 1725, it traded for nearly 250 years, and was especially noted for the propagation and distribution of fine trees, including Turner’s oaks (Loudon 1838). This survivor is massive and vigorous, 17 m in height and 3.6 m in girth at 1.8 m, dwarfing the London park trees but comparable to the example at Whiteknights, Reading, which is 15 m in height and 3.5 m in girth.

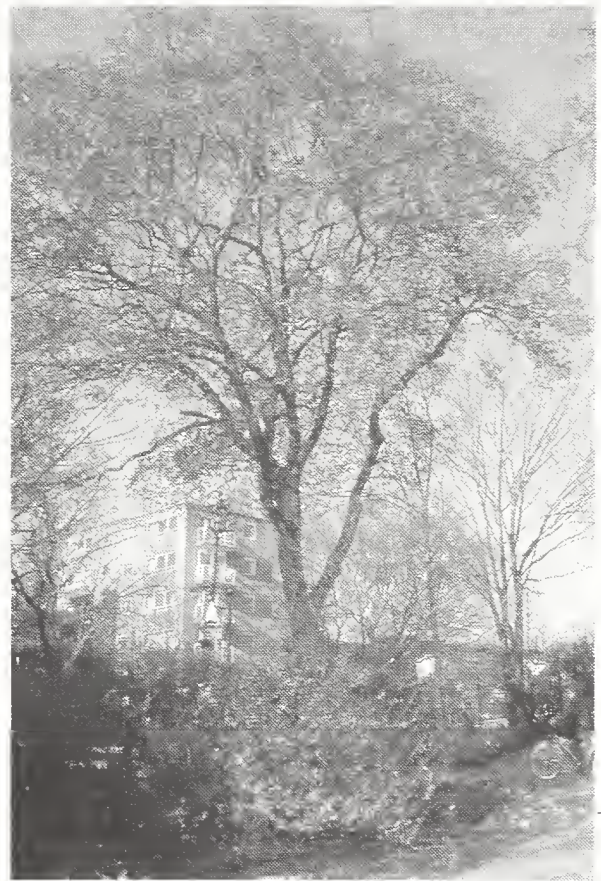


FIGURE 1. ‘Spencer Turner’ oak on Primrose Hill, February 2002.

Photo: Elinor Wiltshire

References

- BEAN, W. J. 1988. *Trees and shrubs hardy in the British Isles*. Supplement. London.
 LOUDON, J. C. 1838. *Arboretum et Fruticetum* 3: 922–924. London.
 WEBSTER, A. D. 1920. *London trees*:25. London.
 WILTSHIRE, E. and COOMBES, A. J. 2001. *Quercus* × *turneri* Willd. — a rare London hybrid oak. *Lond. Nat.* 80: 21–27.

Book review

Exploring London's gardens. A seasonal guide. Written, illustrated and published by Lorna Lister. 2001. Ripon. 127 pp., 28 colour illustrations. ISBN 0 9540532 0 6. £7.99 post free from Lorna Parker, The Round House, Chalford, Stroud, Gloucestershire GL6 8NS, tel: 01453 885221.

This attractive book is a practical guide to over seventy gardens large and small scattered throughout Greater London. They are expertly and enthusiastically described, many illustrated by the author's own photographs. Attention is drawn to the special features of each, and the best seasons for visiting are recommended. The sites are listed in alphabetical order, with particulars of public transport, amenities and facilities, cafes, and telephone numbers.

This selection covers a wide range of gardens. Some are in the royal parks — Hyde Park, Kensington Gardens, Regent's Park, Greenwich and Richmond Parks. Others are in purpose-made municipal parks, notably Battersea and Victoria. Many have been chosen from the assortment of parks and gardens which were once private grounds, on which former owners had lavished much wealth and taste. When changing times and the city's expansion made maintenance of such properties impossible, they were sold (and Waterlow was donated) for public use. Among them are Brockwell Park, Cannizaro Park, Chiswick House, Eltham Palace, Fulham Palace, Gunnersbury Park, Ham House, Holland Park, Kenwood House, Marble Hill, Morden Hall, Myddelton House, Ravenscourt Park, and West Ham Park. Some of these passed into public ownership in relatively recent times — Holland Park, for instance, in 1952, and Myddelton House in 1968. In such properties some rare trees, shrubs and other plants still survive, with remnants of original garden features.

Individual gardens mentioned vary from historic Chelsea Physic Garden to recent Chumleigh multicultural garden in Southwark, laid out in Oriental, African, Caribbean, Islamic and other styles. Others are associated with notable buildings or people, such as Westminster Abbey and Carlyle's house. The tiny Postman's Park near St Paul's will be a surprise to many people (St Paul's churchyard itself is not included, but is well worth visiting). There are gardens in cemeteries, on roofs, and in many other unexpected places. In case members wonder what relevance such attractions have for natural history enthusiasts, they will be pleased to know that Camley Street and other London Wildlife Trust reserves are included.

However, the broader significance of all these (and many other) gardens and green spaces is that they provide a network of oases and 'bridges' across the capital. These provide opportunities for wildlife communities to link up across wastes of concrete, brick, steel, and asphalt, and so make survival possible. Many gardens now have at least a corner which is cultivated with birds, butterflies, and other species in mind. Outstanding in this respect is the Wildlife Garden of The Natural History Museum (not included in this book), where detailed records are kept and scientifically monitored.

Exploring London's gardens is a welcome guide to many sites, and readers will enjoy adding to the list from their own knowledge. It will also stimulate them to watch out for new projects, of which many are developing throughout the city.

ELINOR WILTSHIRE

Herbarium records of London lichens

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Abstract

As part of a wider project a review of voucher specimens for lichens in London has been undertaken and uniquely numbered specimens are listed. The importance of herbaria in biological recording is emphasized. A comparison is made with Laundon (1970) and additional species are listed.

Introduction

The importance of biological recording is now recognized and many local record centres are being set up around the country — however I would like to emphasize that although all records are important those that are vouchered are particularly so, as they can be referred to again and even reidentified as species concepts change. This is where museum herbaria are so valuable.

The British Lichen Society (BLS) database, kept by Professor Mark Seaward at Bradford University, records some 370 taxa, on a 10-km square basis, in the London area and I have already used this to find which were the most commonly recorded species in London. However, I wondered how many of these are backed up by voucher material? In an endeavour to answer this question I have appraised the British Herbarium at The Natural History Museum (**BM**) and have some additional information from the Royal Botanic Gardens, Kew (**K**) and the South London Botanical Institute (**SLBI**). I wish to express my thanks to Peter Roberts at Kew and Ken Hill at **SLBI** for providing these. The specimens from Kew are from their database and have Kew Mycology numbers **K(M)**, whilst all the specimens I have found at the **BM** have been databased, so have bar code numbers: this allows them to be traced when names change. Over a quarter of the species in the BLS database have been vouchered and are given below as a baseline reference.

Type species are important in taxonomic and floristic studies and London is the type locality for several lichens. Where possible and practical such sites merit careful conservation measures. Hampstead Heath is the type locality of *Cladonia peziziformis* (With.) Laundon, a BAP species, sadly no longer found there; the type specimen, collected by Dillenius, is in the Sherard Herbarium at Oxford (**OXF**). All Saint's churchyard in Fulham is the type locality of *Leparia eburnea* Laundon, and Blackheath is the type locality for *Vezdaea leprosa* (P. James) Vězda. The holotype specimens of both are in **BM**. Epping Forest is an important area for lectoparatypes of *Lecanora conizaeoides* Nyl. ex Cromb. and for *Calicium lenticulare* f. *chlorodes* Nyl. which has been synonymized with *Calicium glaucellum* Ach. Hendon is the type locality for isolectotypes of *Lecidea parissima* Nyl. in Cromb. which has been synonymized with *Micarea denigrata* (Fr.) Hedl.

Lichens have long been known as indicators: as early as 1877 this was noted, see **BM000662040** *Amandinea* (*Buellia*) *punctata*. Additional information associated with the specimens makes them more interesting. Most of the London records are from only a few collectors, especially Forster and Crombie in the

nineteenth century and Laundon in the twentieth. Laundon (1970) gave his collections a personal collection number which is another good identifying feature. He listed 165 taxa, not all vouchered, and this one covers 120, some of which are new. I also give a bibliography of literature pertaining to London lichens, especially works published since 1970.

We seem to be at an exciting moment in lichen recolonization with eighty-four species recorded at Kew, including *Cyphelium notarisii* (Tul.) Blomb. & Forss., a *Red Data Book* species (James et al. 1998), and thirty-five and rising at the Wildlife Garden at the NHM. I would like to encourage people to send in good, well documented, material for inclusion in the herbarium. If anyone is visiting other collections and comes across London material please let me know as I think it is worth having all possible records. As Lichen Recorder for the LNHS it is important to get as wide a baseline as possible.

Herbarium records of London lichens

Listed are records in the British Lichen Herbarium at The Natural History Museum, with additional material from Kew and South London Botanical Institute, under current name with new generic names in brackets after the Purvis et al. (1994) Checklist name and with Laundon (1970) name in [] if different.

Acarospora fuscata (Schrader) Th. Fr.

000662034 as *Acarospora fuscata* (Nyl.) Arnold: Miss N. Wallace, at Cheston Avenue, Shirley, Croydon, Surrey, 1967. Abundant on crumbling brick walls. C+ orange. Det. J. R. Laundon.

Acrocordia gemmata (Ach.) Massal. [*Arthopyrenia alba*]

000006751 as *Verrucaria gemmata*: E. Forster, in the Forest near Hale Brinks, Walthamstow, Essex.

000006752 as *Verrucaria gemmata*: E. Forster, in Epping Forest, Essex.

Anaptychia ciliaris Körber ex Massal.

000006795 as *Parmelia ciliaris*: E. Forster, on trees, nr Walthamstow, Essex.

Anisomeridium biforme (Borrer) R.C. Harris. [*Arthopyrenia biformis*]

000662035 as *Verrucaria biformis*: on a tree at Mark Lane field, Walthamstow, Essex.

Arthonia radiata (Pers.) Ach.

000006797 as *Opegrapha astroidea*: E. Forster, on bark in the Forest (Epping).

000006798 as *Arthonia*: E. Forster, on bark, near Hendon, Middlesex.

000006799 as *Arthonia swartziana*: E. Forster, in garden, Hoe Street, Walthamstow, Essex.

Bacidia chlorotricula (Nyl.) A.L. Sm.

K(M)41160: C.J.B.Hitch. on 9.i.2000 on fence rail at Poor's Field, Ruislip Wood.

Bacidia herbarum (Stizenb.) Arnold

BM slide collection: Laundon 2602, scarce on mortar of top of brick channel wall by small weir at Mitcham Watermeads, Surrey, 1966.

Bacidia laurocerasi (Delise ex Duby) Zahlbr.

K(M)59755: D.L. Hawksworth, 12.i.1997 on *Salix* sp. at Ruislip Common, Middlesex.

Bacidia sabuletorum (Schreber) Lettau

000006791: J.R. Laundon, 2471, on moss on limestone table-tomb at St Andrew's churchyard, Totteridge, Herts. 18.vii.1964. [Sp.3–5sept., 20–30 × 5–7 µm]

Baeomyces rufus (Huds.) Rebent.

000006800 as *Cenomyce rupestris* β *rufus*: in Epping Forest, Essex near the Kings Oak.

000006801 as *L. byssoides*: J.E. Smith, on soil from Hornsey Wood, Essex.

Buellia (Amandinea) punctata (Hoffm.) Massal.

000662036 as *Lecidea myriocarpa* D.C.: J.M. Crombie, on the firs on Hampstead Heath.

000662037 as *Lecidea perinata* [?]: Edward Forster, from a Field, Hoe Street, Walthamstow, Essex.

000662038 as *Lecidea myriocarpa* D.C.: J.M. Crombie, at High Beach, Epping Forest, Essex.

000662039 as *Lecidea myriocarpa* D.C.: J.M. Crombie from Richmond Park, Surrey.

000662040 as *Lecidea myriocarpa* D.C.: Ex. Herb. C. du Bois Larbalestier. 'On an old elm at Hammersmith — on the bank of the Thames. 1877. Has this plant ever been met with previously so near London? I sent a specimen as a curiosity to Dr Nylander.'

000006804 as *Lecidea pinicola*: E. Forster, in Walthamstow, Essex.

000006808: J.R. Laundon, 2395, on 12.v.1963, at Beddington Sewage Farm, Surrey. Abundant on south sides of several *Ulmus* trees. (Spores brown, 1 septate, 13–15 × 6–9 µm)

000006809 as *Lecidea myriocarpa* DC. var. *chloropolia*: J.M. Crombie, v.1872 Finchley, Middlesex.

***Calicium glaucellum* Ach.**

000691057 as *Calicium lenticulare* f. *chlorodes* Nyl.: E. M. Holmes, September 1885, in Epping Forest. Lectoparatype? (Lectotype Bovey Tracey, S. Devon). Grevillea XV 1886, p.14 list. Crombie *Monograph of British lichens* Vol 1, p.93. cites the 3 collections, (the other is Shere, Surrey). Det. Leif Tibell, 1974.

000662041 as *Calicium curtum* T&B: J.M. Crombie, from old trees in Epping Forest. Det. Leif Tibell, 1974.

***Calicium viride* Pers.**

000662042 as *Calicium hyperellum* Ach.: J.M. Crombie, in Epping Forest, Essex.

***Caloplaca ferruginea* (Huds.) Th. Fr.**

000006762 as *Lecidea ferruginea*: E. Forster, on the trunk of tree at Kings Oak, High Beach, Epping Forest, Essex.

***Candelaria concolor* (Dickson) B. Stein**

000006789 as *Lecanora candelaria*: E. Forster, on trees, Walthamstow, Essex.

000006790 as *Lecanora candelaria*: J.M. Crombie, at High Beach, Epping Forest, Essex.

***Candelariella aurella* (Hoffm.) Zahlbr.**

000006783: J.R. Laundon, 2191, 27.xii.1960, at 14 Victory Avenue, Morden, Surrey. Abundant on concrete roof of shelter in garden. (Spores 8 in ascus. Ap. K-. Slide in collection.)

***Candelariella vitellina* (Hoffm.) Müll. Arg.**

000662057: E. Milne-Redhead, on 9.i.1932, from top of wall just above ledge, at Petersham Park, Richmond Park, Surrey.

000662060 as *Parmelia vitellina*: E. Forster, on wall at Walthamstow, Essex.

***Catapyrenium lachneum* (Ach.) R. Sant.**

000006817 as *Verrucaria Hedwigi*: E. Forster, on anthills near the Great bog near Salters buildings, Epping, Essex.

***Catillaria lenticularis* (Ach.) Th. Fr.**

BM slide collection: P.T. Edwards, 27.xii.1967, in grounds of Kew Herbarium, Richmond, Surrey.

BM slide collection: Laundon, 2649, in churchyard, Edmonton, Essex, in 1968.

***Chaenotheca chrysocephala* (Turner ex Ach.) Th. Fr.**

000006792 as *Calicium chrysocephalum*: E. Forster, at Walthamstow, Essex.

***Chaenotheca ferruginea* (Turner ex Ach.) Mig.**

000006793 as *Calicium melanophaeum* Ach.: J.M. Crombie, on felled stumps in Epping Forest, Essex.

000006794 as *Chaenotheca melanophaea* var. *flavocitrina* Pauls.: J. H. Blom, near Coulsdon, Surrey in June 1919. (det. R. Paulson).

000662065 as *Calicium ferrugineum*: J. M. Crombie, from old pales nr Millhill, Middlesex. Det. Leif Tibell, 1974.

000662066 as *Calicium ferrugineum*: E. Forster, on pales in garden at Hoe Street, Walthamstow, Essex. Det. Leif Tibell, 1974.

***Chaenotheca furfuracea* (L.) Tibell**

000006818 as *L. capitellatum*: from Esher, Surrey. (2) Note: (1) is from New Shanklin. Isle of Wight.

000006819 as *Calicium furfuraceum*: E. Forster, on bank, Walthamstow, Essex. (Det. *Coniocybe furfuracea* (L.) Ach. Leif Tibell 1980)

Cladonia arbuscula (Wallr.) Flotow

000662067: from Wimbledon Common, Surrey. Herb. G. Davies.

Cladonia caespiticia (Pers.) Flörke

000662068 as *Cladonia caespiticia* Flk.: J.M. Crombie, on the ground, Epping Forest, Essex.

000006806 as *Cenomyce caespiticia*: E. Forster, in Hornsey Woods, Essex.

000006807 as *Cenomyce caespitiicius*: E. Forster, in Epping Forest, Essex.

Cladonia chlorophaea (Flörke ex Sommerf.) Sprengel

000006804 as *Cenomyce fimbriata*: E. Forster, in Epping Forest, Essex. (Fumarprotocetraric acid, also atranorin. R Nourish, 1975.)

Cladonia coniocraea (Flörke) Sprengel

000006813 as *Cladonia macilenta*: on 25.i.1930, at Ham Cross Plant, Richmond Park, Surrey. (Another packet collected on wall near Poplar Pond on 21.ii.1930 det. as *Cladonia* sp. by Laundon in same packet.)

000006815 as *Cladonia macilenta*: E. Milne-Redhead, 4.x.1929, by wall just south of gate, Ham Gate, Richmond Park, Surrey. (Second packet from SE of Bog Lodge, collected 17.xi.1929 det. as *Cladonia* sp. J.R. Laundon, 1960.)

000662069: J.R. Laundon, 2473, 23.viii.1964, on banks, South side, Mitcham Common, Surrey. (K-, P+ yellow changing to red. Contains fumarprotocetraric acid! R. Nourish, 1975).

000662070: J.R. Laundon, 1157, 12.vi.1955, on rubbish tip at Wimbledon Park. Surrey. Locally abundant amongst *Ceratodon purpureus* on rubble. (Contains fumarprotocetraric acid. Det. R. Nourish 1975.)

000662064 as *Cladonia squamosa*: 7.ii.1931 at Pond Plantation, Richmond Park, Surrey. Det. J.R. Laundon, 1959. (Fumarprotocetraric acid. Det. R. Nourish 1975.)

K(M)76176; J.L. Gilbert, 7.vii.1958 at Hounslow Heath.

Cladonia conista A.W. Evans [now synonymized with *C. humilis*. See below].

SLBI: nr Footscray, Ruxley, Kent. TD4871. Leg. and det. F. Brightman.

Cladonia crispata var. *cetrariiformis* (Delise) Vainio

000662071 as *Cladonia crispata* (Ach.) Flot: J.R. Laundon, 1860, 16.ii.1958 on Putney Heath, Wandsworth, Surrey. Scarce amongst *Calluna* on raw humus. Confirmed T. Ahti. (Podetia P-.)

Cladonia fimbriata (L.) Fr.

000662072: J.R. Laundon, 1156, 12.vi.1955, at rubbish tip, Wimbledon Park, Surrey. Scarce on rubble.

000006802: A.C. Jermy, 8.x.1960 on vertical sandstone slab in rockery, Royal Botanic Gardens, Richmond, Kew, Surrey. (Fumarprotocetraric acid. R Nourish, 1975.)

000006803: A.R. Vickery, 118, 14.ix.1969, on soil in crevices in brick wall, Italian Garden, Kensington Gardens, London. (Fumarprotocetraric acid. R. Nourish, 1975. Det. J.R. Laundon).

000006805 as *Cenomyce fimbriata*: E. Forster, in Epping Forest, Essex. (Fumarprotocetraric acid, also atranorin. R. Nourish, 1975)

Cladonia floerkeana (Fr.) Flörke

000006811 as *Cladonia bacillaris* Nyl.: J.R. Laundon, 2474, 12.ix.1964, on humus in grass-heath, at Barnes Common, Surrey. (P-, K-. Barbaric acid R. Nourish. Det. R. Nourish, 1974.)

000006812 as *Cladonia bacillaris* Nyl.: J.R. Laundon, 2472, 23.viii.1964. Scarce on mor on bank on south side, Mitcham Common, Surrey. (K-: P-. R. Nourish, 1974.)

K(M)76175: J.L. Gilbert, 6.i.1957 at Hounslow Heath.

Cladonia furcata (Huds.) Schrader

000006763 as *Cenomyce spinosa*: E. Forster, Epping Forest, Essex. Several specimens.

000662073 as *Baeomyces furcatus*: E. Forster, Forest near High Beach in Epping.

000662074 as *Baeomyces pungens* Borrer: Esher Common, Surrey. (K+. 'C. rangif.d. Ach.40.' 'C. furcatus v. pungens.....').

000662075 as *Cenomyce furcata*: E. Forster, in Epping Forest, Essex.

000662076 as *Cladonia furcata*: 7.ii.1931, Pond Plantation, Richmond Park, Surrey.

000662077: J.R. Laundon, 1155, 12.vi.1955, at Wimbledon Park, Surrey. Rubbish tip. Scarce on rubble. (Note on chemistry by Klaus Ammann, 1980. Fumarprotocetraric, protocetraric, hypoprotocetraric.)

BM: Herb. Sloane 115:1. Hampstead. Rev. Buddle.

***Cladonia gracilis* (L.) Willd.**

BM: Herb. Sloane 111:1 Hampstead. Rev. Buddle.

BM: Herb. Sloane 285:32 Hampstead Heath, 1696 or 1697.

***Cladonia humilis* (With.) Laundon**

000006769 as *Cladonia pyxidata* (L.): J.M. Crombie, at High Beach, Epping Forest. (R.N. 417. *C. conistea* (Del.) Asah. Contains atranorin and fumarprotocetraric acid. 1975. Confusion with 418.)

***Cladonia macilenta* Hoffm.**

000006765 as *Baeomyces* ...: E. Forster, at Salisbury Huts Pound, Chapel End, Walthamstow, Essex.

000006810: J.M. Crombie, in Epping Forest, Essex.

000006814: slope E of Lower Pond outlet, Richmond Park, Surrey 17.xi.1929. (Det. *C. bacillaris* Nyl. by J.R. Laundon, 1960. Also another packet from park wall inside Rifle Range det. *Clad.* sp.)

000006816 as *Cladonia macilenta* (Ehrih.) var. *ostreata* Nyl.: J.M. Crombie, x.1884, on trunks of old trees, Epping Forest, Essex.

***Cladonia ochrochlora* Flörke**

K(M)59757: D.L. Hawksworth, 31.v.1997 on *Salix* at Ruislip Local Nature Reserve.

***Cladonia peziziformis* (With) Laundon [*C. capitata*]**

Hampstead Heath, Dillenius in Herb. Sherard (**OXF**) — not yet investigated.

***Cladonia pocillum* (Ach.) O.J. Rich**

000006766: Isaac Rand at Putney turning into Wandsworth Road, Surrey. On a wall. Det. J.R. Laundon, 1962.

***Cladonia portentosa* (Dufour) Coem. [*C. impexa*]**

BM: Herb. Sloane 115:1. Hampstead

***Cladonia pyxidata* (L.) Hoffm.**

000006767: A.R. Vickery, 193, 8.iv.1970, at Whitehill Cottage, Mickleham, Surrey. GR:51/17-52- Abundant on mosses on roadside wall. (R. Nourish, 1975. Contains fumarprotocetraric acid No. 320.)

000006768 as *Lichen pyxidatus*: J.E. Smith, Hampstead Heath, Middlesex. (RN 415)

000006849 as *Cladonia pyxidata* (L.) Hoffm. var. *pyxidata*: J.R. Laundon, 1687, on 29.ix.1956, at Brompton Cemetery, Kensington, London. Scarce on moss on limestone.

K(M)76174: J.L. Gilbert, 122, 123 & 124, 6.i.1957, at Hounslow Heath.

***Cladonia rangiformis* Hoffm.**

000006820 as *Baeom. Pungens* Ach.: E. Forster, at Esher, Surrey. (Contains atranorin and rangiformic acid. R. Nourish. 1975.)

000006821 as *Baeomyces subulatus*; E. Forster, in the Forest near Haggard Lane, Epping, Essex. (Contains atranorin and rangiformic acid. R. Nourish, 1975.)

BM: Herb. Sloane 115:1. Hampstead. Rev. Buddle.

***Cladonia squamosa* (Scop.) Hoffm.**

K(M)76171: J.L. Gilbert, 125, 6.i.1957, Hounslow Heath.

***Cladonia subulata* (L.) Weber ex Wigg.**

BM: Herb. Sloane 115:3. Hampstead. Rev. Buddle.

***Clauzadea monticola* (Ach.) Hafellner & Bellem.**

000006749 as *Lecidea ochracea* Wedd: 1913, autumn. Epping Forest, Essex.

***Cliostomum griffithii* (Sm.) Coppins**

000662078 as *L. tricolor*: J.M. Crombie, in Epping Forest. ('spermagone .001. Sterigmata branched.')

000662079 as *Lecidea tricolor* With.: J.M. Crombie at High Beach, Epping Forest.

***Collema fuscovirens* (With.) Laundon**

000006822 as *Collema furvum* Ach.: E. Forster, on a tombstone in Walthamstow churchyard, Essex.

000006823 as *Collema granulatum*: E. Forster, in Chingford churchyard, Essex.

000006824 as *Collema granulatum*: in East Barnet churchyard, Hertfordshire.

***Cyphelium inquinans* (Sm.) Trevisan**

000006825 as *Trachylia tympanellum* (Ach.): J. M. Crombie, on old post, nr Totteridge, Middlesex. Det. Leif Tibell, 1969.

000662016: F. Rose, 12.xi.1966, half a mile south of West Peckham church, Kent on decaying wooden rail on top of gate.

***Cyphelium sessile* (Pers.) Trevisan**

000662017 as *Trachylia stigonella* Ach.: J. M. Crombie, in Epping Forest. Parasitic on *Pertusaria*. Redet. Leif Tibell, 1969.

***Cyphelium tigillare* (Ach.) Ach**

000662081 as *Calicium tigillare*: E. Forster. 1. On a barn between Wood Street, Walthamstow and Epping Forest. 2. Paling near Hoe Street, Walthamstow, now destroyed. Sterile. Det. Leif Tibell 1969.

000662080 as *Trachylia tigillaris* Ach.: J.M. Crombie, x.1865, near Loughton, Essex. On old garden pales. (Sterile — Leif Tibell, 1969.)

***Diploicia canescens* (Dickson) Massal [*Buellia canescens*]**

000662006 as *Lecidea canescens* (Dicks.): J. M. Crombie, at Hendon, Middlesex.

000662007 as *Lecidea canescens* (Dicks.): J. M. Crombie, v.1865, on trunks of old trees in Nonsuch Park, Cheam, Surrey.

000662009 as *Lecidea canescens* (Dicks.): J. M. Crombie, 178, Cheam, Surrey.

000662010 as *Lecidea canescens* (Dicks.): E. Forster, Walthamstow, Essex.

***Diplotomma alboatrum* (Hoffm.) Flotow**

000006826 as *Lecidea alboatra*: E. Forster, from near Loughton, Essex.

***Evernia prunastri* (L.) Ach.**

000662018: unknown, 1969, Aldenham, nr Watford, Herts. Det. P.W. James.

000662061 as *Parmelia prunastri* var. *corniculatum*: E. Forster, in the Forest (Epping?). Ten specimens on the sheet.

000662062 as *Parmelia prunastri*: E. Forster, on trees, Essex. Seven specimens on the sheet.

***Graphis elegans* (Borrer ex Sm.) Ach.**

000006738 as *Graphis elegans* (Sm.) f. *coacervata* Leight.: J. M. Crombie, v.1865, near Copped Hall, Epping Forest. On branches of old trees.

***Graphis scripta* (L.) Ach.**

000006739 as *Graphis scripta* var. *spathea* Mudd.: H. Piggot, 1862, in Epping Forest. On original label 'rare in Essex'.

***Hyperphyscia adglutinata* (Flörke) Mayrh. & Poelt.**

000006827 as *Squamarina chiones*: E. Forster, on an apple tree, Hoe Street, Walthamstow, Essex.

***Hypocenomyce scalaris* (Ach. ex Lilj.) M. Choisy**

000006734 as *Lecidea ostreata*: J. M. Crombie, v.1870, on old palings at Totteridge, Herts.

000006854 as *Lecidea scalaris*: E. Forster in garden in Hoe Street, Walthamstow, Essex.

000006853 as *Lecidea ostreata* (Hoffm.): J. M. Crombie, on wood in Hendon, Middlesex. ('ad ligna vetusta prope Hendon in Angliae Middlesex').

000006852 as *Lecidea ostreata* (Hoffm.): J. M. Crombie, in Hampstead, Middlesex.

***Hypogymnia physodes* (L.) Nyl.**

000006828 as *Parmelia physodes*: collected on 17.xi.1929, SE of Bog Lodge, Richmond Park, Surrey. (Summerhayes, Kew)

***Lecania erysibe* (Ach.) Mudd**

000006745 as *Lecania erysibe* forma *sorediata* Laundon: J. R. Laundon, 2190, 27.xii.1960, on shaded stones and humus beneath roof of shelter in garden of No.14 Victory Avenue, Merton, Surrey.

000006746 as *Lecania erysibe* forma *sorediata* Laundon: J.R. Laundon, 2609, 16.i.1967, at The Holme, Regent's Park, Westminster. Frequent on limestone rocks. Fertile.

000006747 as *Lecania erysibe* forma *sorediata* Laundon: J.R. Laundon, 2477, 13.xii.1964, as abundant on concrete channel in Hundred Acre Lane, Beddington Sewage Farm, Croydon, Surrey.

000006748 *Lecania erysibe* forma *sorediata* Laundon: J.R. Laundon, 2595, 5.ix.1966, as abundant on concrete channel in Hundred Acre Lane, Beddington Sewage Farm, Croydon, Surrey.

***Lecanora carpinea* (L.) Vainio**

000006740 as *Parmelia albella*?: E. Forster, in Epping Forest, Essex.

000006741 as *Parmelia angulosa*: E. Forster, in Epping Forest, near Loughton, Essex.

000006742 as *Lecanora angulosa* (Ach.): J. M. Crombie, near High Beach, Epping Forest, Essex.

***Lecanora conizaeoides* Nyl. ex Crombie**

000662011: J. M. Crombie, .iv.1868 in Epping Forest, Essex. [Lectoparatype.]

000662012 as *Lecanora conizaea* Ach.: J. M. Crombie, iv.1868, on old pales at Finchley, Middlesex.

000662013 as *Lecanora varia*; from Richmond Park, Surrey. Det. J.R. Laundon.

000662014: J. R. Laundon, 627, .vi.1953, at Great Bookham, Surrey, where common on *Betula* and *Quercus*. Det. J.R. Laundon.

000662015 as *Lecanora homopis* Nyl.: J. R. Laundon, 1693, Middlesex, Finchley.

000662033 as *Lecanora varia*: 17.xi.1929, on fallen oak branch, under oaks, SE of Bog Lodge, Deer Park, Richmond, Surrey.

000662043 as *Lecanora conizaea* (Ach.): J.M. Crombie, on old pales in Epping Forest. (Pd + orange-red! Tested I.M.L. *Lecanora conizaeoides* f. *saepincola* Erichs. M. Lamb)

000662044 *Lecanora conizaea* (Ach.): J.M. Crombie, on old pales in Epping Forest. (Pd + orange-red! Tested I.M.L. *Lecanora conizaeoides* f. *saepincola* Erichs. M. Lamb.)

000662045 *Lecanora conizaea* (Ach.): J.M. Crombie, on old pales at Elstree, Herts. (Pd + orange-red! Tested I.M.L. *Lecanora conizaeoides* f. *saepincola* Erichs. M. Lamb.)

000006753: J.R. Laundon, 714, 31.x.1953, Middlesex, Chelsea Physic Garden. On two trees. Fertile.

***Lecanora dispersa* (L.) Sommerf.**

000691050 as *Lecanora hageni*: E. Forster, at Lea Bridge Road, Leyton, Waltham Forest, Essex.

000691051 as *Lecanora dispersa* forma: J.R. Laundon, 1723, 29.ix.1956, at high-water mark on wooden piles in the River Thames, Battersea Church Wharf, Surrey.

000006735 as *Lecanora galactina* Ach. *dissipata* Nyl.: J.M. Crombie, on composite of walls, Notting Hill, London. Middlesex.

000006736 as *Lecanora galactina* Ach. *dissipata* Nyl.: J.M. Crombie, on composite of walls, Camden Town, London. Middlesex.

000006737: J.E. Menlove 4.vi.1973, on asbestos roof of Mammal Research Block, British Museum (Natural History), South Kensington, London.

K(M)76163 *Lecanora dispersa* (Pers.) Rohl.: J.L. Gilbert, 138, 27.i.1957, at Gunnersbury Park.

SLBI: Nr. Foots Cray, Ruxley, Kent. No date. Coll: F. Brightman.

***Lecanora jamesii* Laundon**

K(M)59725: D.L. Hawksworth on 23.iii.1996, on *Salix fragilis* at Ruislip Local Nature Reserve.

***Lecanora pallida* (Schreber.) Rabenh.**

000006743 as *Parmelia albella*: E. Forster, in the Forest near Epping, Essex.

***Lecanora pulicaris* (Pers.) Ach.**

000662046 as *Lecanora chlarona* Ach.: J.M. Crombie, in Epping Forest, Essex.

***Lecanora saligna* (Schrader) Zahlbr.**

000662047 as *Lecanora piniperda* Krb.: J.M. Crombie on old pales, near Edgware, Middlesex. Det. J.R. Laundon, 1972.

***Lecanora sulphurea* (Hoffm.) Ach.**

000006844 as *Lecidea sulphurus*: E. Forster, on the wall of Shernhall Street garden, Walthamstow, Essex.

***Lecanora symmicta* (Ach.) Ach.**

000006744 as *Lecanora symmictera* Nyl.: J.M. Crombie, on pales, Mill Hill, Middlesex.

Lecanora varia (Hoffm.) Ach.

000006851: E. Forster, on rails, Walthamstow, Essex.

000006850 as *Lecanora varia* (Ehrh.): J.M. Crombie, on pales, Finchley, Middlesex.***Lecidella elaeochroma*** (Ach.) M. Choisy [*Lecidea limitata*]000006750 as *Lecidea parasema* Ach. var. *elaeochroma* Ach.: J.M. Crombie in Epping Forest, Essex.***Lepraria eburnea*** Laundon000006773: J.R. Laundon, 3195, 30.vi.1985, in slight shade on moss, brick, and mortar on vertical surface of brick wall on east side of churchyard, All Saints Fulham, Middlesex. TQ 243759. (**Holotype**. Contains alectorialic and protocetraric acids).***Leproloma diffusum*** Laundon

000006778: J.R. Laundon, 3186, 30.vi.1987, on moss at base of limestone chest-tomb at NE corner of church, All Saints Fulham churchyard, Middlesex. (51/243759 Oxypannaric acid TLC482:5, 509: 16. C + yellow, K + yellow, P + pale orange)

Leptogium corniculatum (Hoffm.) Minks000006829 as *Collema palmatum* Huds.: E. Forster, on the Forest near Hale End, Epping, Essex.***Micarea denigrata*** (Fr.) Hedl. [*Catillaria denigrata*]000662048 as *Lecidea denigrata* (Fr.): J.M. Crombie, near Mill Hill, Middlesex. Det. B.J. Coppins, 26 November 1980.000662049 as *Lecidea synothesca* Ach.: J.M. Crombie, on a bridge now destroyed, at Esher, Surrey. ('..not type of *L. synothesca*, which is from Sweden. BJC'). Det. B.J. Coppins, 26.xi.1980.000662050 as *Lecidea denigrata* Fr.: J.M. Crombie, x.1867, on old pales, at High Beach, Epping Forest. Det. B.J. Coppins, 26.iv.1972.0000006696 *Lecidea parissima* Nyl.: Rev. J.M. Crombie, at Hendon, Middlesex. (**Isolectotype** of *Lecidea parissima* Nyl. in Cromb. = *Micarea denigrata* Fr. Hall. Hym I+ blue! B.J. Coppins 22.i.1980.)0000006697 *Lecidea denigrata* Fr. var. *pyrenothizans* Nyl.: Rev. J.M. Crombie, v.1870 at Golder's Green: Hendon. (**Isolectotype** of *Lecidea parissima* Nyl. in Cromb. = *Micarea denigrata* Fr. Hall. Hym I+ blue! B.J. Coppins, 22.i.1980. *Lecidea parissima* Nyl. on piece of paper pasted on.)0000006698 *Lecidea denigrata* Fr. var. *pyrenothizans* Nyl.: Rev. J.M. Crombie, on old pales at Hendon, Middlesex. (**Isolectotype** of *Lecidea parissima* Nyl. in Cromb. = *Micarea denigrata* Fr. Hall. B.J. Coppins 22.i.1980.)***Ochrolechia parella*** (L.) Massal.000006830 as *L. parellus*: collected in October 1788, Harefield Park, Bucks. 'ad rupes'. Ex. Hb. Sir J.E. Smith.***Ochrolechia turneri*** (Sm.) Hasselrot000006788 as *Ochrolechia turneri* (Sm.) Laundon: J.R. Laundon on 8.i.1956, at Bayfield Pond, Area Q, Bookham Common, Surrey. On *Salix*. (Vidi Ove Almborn 1962 as *O. microstictoides*. Ras. K-.C-.KC-.)***Opegrapha atra*** Pers.000662051 *Opegrapha atra* var. *hapalea* Ach.: J.M. Crombie, in Epping Forest.***Opegrapha herbarum*** Mont.000006831 as *Opegrapha betuligna*: E. Forster, on the forest near Salters buildings, Epping, Essex. Det. A. Pentecost, 1969.

000006832: E. Forster, between Walthamstow and Loughton, Essex. Det. A. Pentecost, 1969.

000006833 as *Opegrapha atro-rimalis* Nyl. f. *minor* Nyl. J.M. Crombie, vi.1866, near High Beach, Epping Forest, Essex.***Opegrapha rufescens*** Pers.000006758 as *Opegrapha herpetica*: E. Forster near the Kings Oak, High Beach, Epping Forest.000006759 as *Opegrapha*: E. Forster in the Forest (Epping) between Woodfall Wells and Chingford Hatch.

***Opegrapha varia* Pers.**

000006754 as *Opegrapha notha* var. (?): E. Forster, near Chingford Hatch, Essex. On a tree in the Forest. (This specimen includes *Opegrapha atra* Pers. On *Carpinus*. Spores 3-septate, 15-16 x 3.5 µm. J.R. Laundon, 1962.)

000006755 as *Opegrapha atro-rimalis* Nyl.: J.M. Crombie, in Epping Forest.

000006756 as *Opegrapha nothea*: E. Forster, in Epping Forest

000006757 as *Opegrapha varia* f. *liguata* Ach.: J.M. Crombie, at Mill Hill, Middlesex.

***Opegrapha vulgata* (Ach.) Ach.**

000662052: William Phillips, 1874, on old willow at Sutton, Surrey.

000662053: Edward Forster, in Epping Forest, Essex, vc 18.

***Parmelia (Flavoparmelia) caperata* (L.) Ach.**

000006834: E. Forster, on rails of paling in garden, Hoe Street, Walthamstow, Essex.

***Parmelia saxatilis* (L.) Ach.**

K(M)59748: D.L. Hawksworth, 23.iii.1996, on *Salix fragilis* at Ruislip Local Nature Reserve.

***Peltigera membranacea* (Ach.) Nyl.**

000006779 as *Lichen caninus*: E. Forster, on the Forest Common, (Epping) Essex.

***Peltigera neckeri* Hepp ex Müll. Arg.**

000008347: O.W. Purvis, et al. 6.i.2001, at West Brompton Cemetery, London. Growing on gravestone. Det. O.W. Purvis, 21.v.2001.

***Pertusaria albescens* (Huds.) M. Choisy & Werner**

000006782 as *Ln. fagineus*: Lambeth, on beach (beech). Det. Ove Almborn as *Pertusaria faginea* L.. Tuck. 1959. KC-.

***Pertusaria flavida* (DC.) Laundon**

000006835 as *Isidium lutescens*: E. Forster on a tree in the woody part of Epping Forest near Haggard Lane, Walthamstow, Essex. (Det. *Pertusaria lutescens* (Hoffm.) Lamy by Ove Almborn, 1959. C+aurant.)

***Pertusaria hemisphaerica* (Flörke) Erichsen**

000006784: J.R. Laundon, 1691, 1956, at Bookham Common, Surrey. On *Quercus* in area N. (White, outer zone to thallus. Rare.)

***Pertusaria hymenea* (Ach.) Schaerer**

000006785 as *Pertusaria pustulata*: E. Forster, in Epping Forest between Loughton and Walthamstow, Essex. (1959 det. as *Pertusaria pustulata* Ach. Duby by Ove Almborn 'Sp.2, obscurael' 1971 det. *P. hymenea* by Martyn J. Dibben with chemistry K+ y, KC+or. Epith K+viol. Thiophanic and gyrophoric acids by TLC. 17.vii.1980 W. Purvis constict, stictic.)

000006787 as *Thelotrema hymenium*: E. Forster, in Epping Forest and Hainault Forest. (Det as *P. wulfenii* DC by Ove Almborn 1960. TLC 31.vii.80. W.Purvis: thiophanic and gyrophoric acids.)

***Pertusaria leioplaca* DC.**

000006786 *Pertusaria leioplaca* (Ach.): J.M. Crombie, near High Beach, Epping Forest. (Det W. Purvis 24.vii.1980 TLC stictic, 2,7 dichlorolichexanthane).

***Phaeographis dendritica* (Ach.) Mull. Arg.**

000006838: E. Forster, on bark between Woodfall Wells and Chingford Hatch, Epping Forest, Essex. (Exciple dark at base. Sp's (8)-9(-10) septate. Det. B.J. Coppins. vi.1977).

000006839 as *Graphis dendritica* (Ach.): H. Piggot, on oak trees in Epping Forest, Essex. (Exciple dark at base. Sp's (6)7-9 septate. Det. B.J. Coppins vi.1977).

000006840 as *Gr. Inusta* f. *stellata*: J.M. Crombie, on bark in Epping Forest, Essex. (Short spored form. Exciple dark at base, sp's 5-7 sept. 37-45 µm. Det. B.J. Coppins, vi.1977).

***Phaeophyscia nigricans* (Flörke) Moberg**

000662020 as *Physcia nigricans* (Flörke) Stiz.: J.R. Laundon., 2648, 10.ii.1968, on limestone memorial at St George's churchyard, Beckenham, Bromley, Kent.

000662021 as *Physcia nigricans* (Flörke) Stiz.: J.R. Laundon, 2476, 13.xii.1964, at Beddington Sewage Farm, Mile Road, Wallington, Surrey, vc 17. Scarce on concrete channel amongst *P. orbicularis*.

Phaeophyscia orbicularis (Necker) Moberg

- 000006848 as *Lecanora virella*: E. Forster, on bark on the Forest near Hale End, Essex.
 000662022 as *Physcia caesia*: W.B.T., on 8.iii.1931, at Dechato Road, Richmond, Surrey. (*Physcia orbicularis* var. *virella* Ach. D.T.H. det. A. Wade. v.1960. Unable to read all the writing on envelope.) Det. Roland Moberg, 1974.
 000662023 as *Parmelia virella* (Neck.) Poetch: Edward Forster, near Golders Hill, Loughton, Essex. Det. Roland Moberg, 1974.

Phlyctis agelaea (Ach.) Flotow

- 000662019 as *Phylctis agelaea* Wall.: J.M. Crombie, Essex.

Physcia adscendens (Fr.) H. Olivier

- 000006836 as *Parmelia tenella*: E. Forster, on trees, Walthamstow, Essex.

Physcia aipolia (Ehrh. ex Humb.) Fűrnrrohr

- 000006846 as *Physcia aipolia* var. *cercidia* (Ach.): J.M. Crombie on bark, near Edgware, Middlesex.
 000006847 as *Lichen stellaris*: E. Forster, on dead branches of a willow tree in the garden, Walthamstow, Essex.

Physcia caesia (Hoffm.) Fűrnrrohr

- SLBI**: Euston, viii.1960. Coll: F. Brightman.

Physcia clementii (Sm.) Maas Geest.

- 000006780: E. Forster, on a tree in the Forest (Epping) between the Reindeer and Kings Oak, Essex.
 000006781 as *Lecidea clementi*: E. Forster, in Epping Forest near the Kings Oak.

Placynthiella uliginosa (Schrader) Coppins & P. James

- 000006777 as *Lecidea uliginosa* (Schrader) Ach.: J.R. Laundon, 1741, 3.iii.1957, on wet peaty acid soil in grass-heath on edge of golf-course at Hawk Wood, Chingford, Essex.
 000006841 as *Lecidea uliginosa* (Schrader): J. M. Crombie, in Epping Forest, Essex.
 000006842 as *Lecidea fuliginea* (Fr.): J. M. Crombie, at Mill Hill, Middlesex.
 000006843 as *Lecidea fuliginea* Ach.: J. M. Crombie, on old pale near Finchley, Middlesex in May 1873.
 000006845 as *Lecidea uliginosa* var. *fuliginea* Ach.: J. M. Crombie, on decorticated stumps in Epping Forest, Essex.

Polyblastia albida Arnold

- BM** slide collection: St Mary's churchyard, Beddington, Surrey. J.R. Laundon, 2513, in 1965.

Ramalina fastigiata (Pers.) Ach.

- 000662008 as *Parmelia fastigiata*: Edward Forster, at two sites: 1. Hainault Forest. 2. Theydon Mount, Essex.
 000662026: collector unknown, at Aldenham, near Watford, Herts.
 000662027: collector unknown, at Aldenham, near Watford, Herts. Det. P.W. James, 1969.

Ramalina fraxinea (L.) Ach.

- 000662025: Edward Forster, between River Gate and Copthall Green, Essex.

Ramalina lacera (With.) Laundon

- 000662024 as *Parmelia pollinaria*: Edward Forster at two sites: 1. Near Waltham Abbey. 2. Nether Hall, Roydon, Essex. (*Ramalina evernioides* det. Hildur Krog. 1974. Fatty acid.)

Ramonia interjecta Coppins

- K(M)**54771: P.M. Earland-Bennett, 9.i.2000, on *Salix* sp. by Ruislip Lido.

Rinodina exigua Gray

- 000662056 as *Lecanora exigua* Ach.: J. M. Crombie at High Beach, Epping Forest, Essex.
 000662058 as *Lecanora exigua* (Ach.): J. M. Crombie, v.1865, on trunks of old trees at High Beach, Epping Forest, Essex. Det. J. Sheard, 1963.

Rinodina roboris (Duf. ex Nyl.) Arnold,

- 000006837 as *Lecanora sophodes*: E. Forster, on the Forest (Epping) not far from Hale Brinks, Essex.

***Sarcogyne regularis* Körber**

000006776: as *Sarcogyne pruinosa* (Sm.) Körb.: J.R. Laundon, 2189, 27.xii.1960, on concrete roof of shelter, No. 14 Victory Avenue, Morden, Surrey. (Spores polarilocular, colourless, $4-6 \times 2-3$ mm.)

***Scoliciosporum chlorococcum* (Graewe ex Stenhammar) Vězda [*Bacidia chlorococca*]**

000662055 as *Bacidia chlorococca* (Stiz.) Lettau: J.R. Laundon, 2492, 29.vii.1965, on *Salix* by lakeside, at Osterley Park, Hounslow, Middlesex. TQ 147785. (Epithecium light brown. Hypothecium colourless. Spores fusiform, 6–9 septate, $28-33 \times 3$ μ m, [Drawing] in shape narrowing towards one end more than the other; ends generally rounded but some with tapering points. Spores identical with *Migula* Exs. 177.)

***Scoliciosporum umbrinum* (Ach.) Arnold [*Bacidia umbrina*]**

BM slide collection: Laundon, 2603, collected in 1966 at Mitcham Watermeads, Surrey, on brick weir.

***Stereocaulon nanodes* Tuck.**

000662088: P.W. James and A. Milne 13.xii.1970, on brick tile on top of wall by road, Blackheath, SE3. Det. J.E. Menlove, 1974. (TLC 150/19 lobaric, atranorin.)

000662089: A.R. Milne 20.x.1968, at Maze Hill, east side of Greenwich Park, Greenwich, where common on soil on brick wall. Det. P.W. James.

***Stereocaulon pileatum* Ach.**

000662082: J. R. Laundon, 2258, 30.ix.1961, at Box Hill Station, Mickleham, Surrey. TQ 166522. Abundant on decayed fence by footpath by railway. 'Uncertain whether *St. pileatum* or a state of *St. nanodes*; soredia not well enough developed for certain differentiation.' I. Mackenzie Lamb 1966.

000662083: C.P. Castell and J.R. Laundon, 1077, 20.iii.1955, where common on fencing, Box Hill Station, Mickleham, Surrey. (Vidi A.H. Magnusson 1959 '... with cephalodia?') 'Uncertain whether *St. pileatum* or a state of *St. nanodes*; soredia not well enough developed for certain differentiation.' I. Mackenzie Lamb 1966.)

000662084: J. R. Laundon, 2173, 19.vii.1960, at Plumstead Cemetery, Woolwich, W. Kent. Occasional on top of old brick wall by chapel. 'Seems OK for *pileatum*.' I. Mackenzie Lamb 1966.

000662085: Miss N. Wallace 1967, in Cheston Avenue, Shirley, Croydon, Surrey. Abundant on rough brick walls. Det. J.R. Laundon.

000662086: A.R. Vickery, 117, 7.ix.1969, on brick garden wall of No. 229, East Heath Road, Golders Hill Park, Camden. Det. A.R. Vickery.

000662087: J.R. Laundon, 2494, 14.viii.1965, at No. 48-54 Mitcham Park, Mitcham, Surrey. Abundant on acid stone and moss on front walls.

***Strangospora moriformis* (Ach.) B. Stein [*Biatorrella moriformis*]**

000662090 as *Lecidea tantilla* Nyl. 'pyncidiifera': J.M. Crombie, May 1872, on old pales near Mill Hill, Middlesex.

000662091 as *Lecidea tantilla* Nyl.: J.M. Crombie, on old pales, Hendon, Middlesex.

000662092 as *Lecidea tantilla* Nyl. pycnoides: J.M. Crombie, on old pales near Mill Hill, Middlesex. (epithecium brown).

***Trapeliopsis flexuosa* (Fr.) Coppins & P. James**

000006729 as '*Lecidea aeruginosa*' Borr.: J.M. Crombie on old trunks at High Beach, Epping, Essex.

000006730 as *Lecidea flexuosa* (Fr.) var. *aeruginosa* (Borr.): J. M. Crombie, iv.1870, on old pales near Mill Hill, Middlesex. (= *Lecidea aeruginosa* Checklist 1980).

***Trapeliopsis granulosa* (Hoffm.) Lumbsch [*Lecidea granulosa*]**

000006727 as *Lecidea decolorans* (Hffm.): J.M. Crombie, in Epping Forest, Essex.

000006728 as *Lecidea dubia* T. & B.: J.M. Crombie on old pales, Finchley, Middlesex. ('*Lecidea quadricolor* Dicks. Borr. Ex Hook. soralia C+ orange. Det. J.R. Laundon 1962').

***Usnea articulata* (L.) Hoffm.**

00000855 common, Enfield Chase, Middlesex. (TLC 230/13 usnic, protocetraric. Det. H. Marcan, 20.viii.1974. Kept in historical collections).

***Usnea cornuta* Körber**

000662059 as *Usnea intexta* Stirt.: E. Forster 'On a rail in our field', Walthamstow, Essex. Removed from specimen of *U. glabrata*.. (TLC 262/10 salazinic, norstictic, usnic acids. Det. Joy White, 4.ix.1974.)

K(M)59760: D.L. Hawksworth in 1993 where had fallen onto ground under tree at Ruislip Local Nature Reserve.

***Usnea glabrata* (Ach.) Vainio**

000006796 as *Lichen hirtus*: E. Forster, on a rail in our field, Walthamstow, Essex. (2 species on the sheet, *Usnea subfloridana* Stirt. TLC details P.W. James 1975 and F.J. White 1986)

***Usnea rubicunda* Stirton**

000662063 as *U. ceratina* var. *scabrosa* Ach.: E. Forster, near Hogsmill Pond, Hainault Forest, Essex. (TLC Constictic, A+B, stictic, norstictic, usnic acids. Joy [White] 5.ix.1974.)

***Verrucaria macrostoma* forma *furfuracea* B. de Lesd.**

000662028 as *Verrucaria viridula* forma *tectorum* (Massal.) Laundon: J.R. Laundon, 2604, 23.x.1966, at Hundred Acre Lane, Beddington Sewage Farm, Croydon, Surrey, where 'common on concrete channel in illuminated situation.' ('Indeterminable lichen thallus hardly *Verrucaria* sp., associated with *Lecanora dispersa* — gnawed by mites — many dead mites present! M. Skytte Christiansen 1986.) Redet. J.R. Laundon, 1990.

***Verrucaria muralis* Ach.**

000662054: J.R. Laundon, 2260, 8.x.1961, on calcareous stones in garden at 16 Victory Avenue, Morden, Surrey.

***Vezdaea leprosa* (P. James) Vězda**

000006775 as *Micarea leprosa* P. James: A.R. Milne, 22.xii.1968 at 7 Pond Road, Blackheath, London SE3 on brick and between bricks on damp, shaded wall. **Holotype.** (Drawings and notes. Slide in collection.)

***Xanthoria calcicola* Oxner**

000662029 as *Xanthoria aureola* (Ach.) Erichs.: brick wall near Roehampton Gate, Richmond, Surrey. GR:51/210742. Det. B.J. Coppins, 8.xi.1970.

000662030 as *Physcia parietina* var. *congramulata*: Esher Common, Surrey. Det. J.R. Laundon, 1986.

***Xanthoria parietina* (L.) Th. Fr. (see Frontispiece).**

000662031: J.B. & H.M., 26.i.1930, on brickwork of culvert over ditch at horse paddock, Richmond Park, B.6., Surrey.

000662032: collected on 25.i.1930, from Ham Common, NE part, Surrey.

NOTE: The British Lichen Society website, www.theBLS.org.uk, has an accepted species list and a synonym list that can be checked for names.

Acknowledgements

The author wishes to express her thanks to Peter James, Jack Laundon and Ian Tittley for comments on the manuscript of this paper.

Bibliography

- BATES, J.W., BELL, J.N.B. and MASSARA, A.C. 2001. Loss of *Lecanora conizaeoides* and other fluctuations of epiphytes on oak in S.E. England over 21 years with declining SO₂ concentrations. *Atmospheric Environ.* **35**:2557–2568.
- BLATCHLEY, I. 1999. Lichen report 1998/1999. *A. Rep. Orpington Fld Club* **39**:34–37.
- BLATCHLEY, I. 2000. Lichen report 1999. *A. Rep. Orpington Fld Club* **40**:13–17.
- BLATCHLEY, I. 2001. Lichen report 2000. *A. Rep. Orpington Fld Club* **41**:12–15.
- BLATCHLEY, I. In press. Lichen report 2001. *A. Rep. Orpington Fld Club*.
- BOREHAM, S. 1992. A study of corticolous lichens on London plane *Platanus × hybrida* trees in West Ham Park, London. *Lond. Nat.* **71**: 61–69.
- BOREHAM, S. 1993. Changes in the lichen flora on birch *Betula pendula* in northern Epping Forest. *Lond. Nat.* **72**: 25–30.
- BRIGHTMAN, F.H. 1959. Some factors influencing lichen growth in towns. *Lichenologist* **1**: 104–108.
- CROMBIE, J.M. 1869. *Lichenes*. In Trimen, H. and Dyer, W.T. (eds) *Flora of Middlesex*: 405–407, also 363–400 for biographies.
- CROMBIE, J.M. 1885. On the lichen-flora of Epping Forest, and the causes affecting its recent diminution. *Trans. Essex Fld Club* **4**: 54–75.

- DOBSON, F.S. 1994. Lichen hunting in Womble Country. *Bull. Br. Lichen Soc.* **74**: 24–27.
- DOBSON, F.S. 1995. Field Meeting to Nonsuch Park and St Mary's Church, Ewell, Surrey. *Bull. Br. Lichen Soc.* **76**: 44–46.
- DOBSON, F.S. 1998. London's lichens are making a welcome return. *Wild London* Autumn/Winter: 12–13.
- DOBSON, F.S. 2000. Air pollution and the lichens of Wimbledon Common and Putney Heath. In Drakeford, T. and Sutcliffe, U. (eds) *Wimbledon Common & Putney Heath. A natural history*. Wimbledon and Putney Commons Conservators, London.
- DOBSON, F.S. 2001 [2000]. Lichens. An illustrated guide to the British and Irish Species. Ed.4. Richmond Publishing, Slough.
- DOBSON, F.S. 2001. Welcome back after two centuries. *The Richmond Park Magazine* **15**: 15–18 + back cover.
- EARLAND-BENNETT, P. 1989. City diary: London. *Bull. Br. Lichen Soc.* **65**: 11–12. [Kew].
- EARLAND-BENNETT, P. 1991. City diary. *Bull. Br. Lichen Soc.* **69**: 16–17. [City of London Cemetery].
- FERRY, B.W. and COPPINS, B.J. 1979. Lichen transplant experiments and air pollution studies. *Lichenologist* **11** 1: 63–73.
- HAWKSWORTH, D.L. 1973. Some advances in the study of lichens since the time of E.M. Holmes. *Bot. J. Linn. Soc.* **67**: 3–31.
- HAWKSWORTH, D.L. 1999. Lichens (lichen-forming fungi) in Buckingham Palace Garden. *Lond. Nat.* **78** (Suppl.): 15–21.
- HAWKSWORTH, D.L. and McMANUS, P.M. 1989. Lichen recolonization in London under conditions of rapidly falling sulphur dioxide levels, and the concept of zone skipping. *Bot. J. Linn. Soc.* **100**: 99–109.
- HAWKSWORTH, D. and McMANUS, P. 1989. Lichens that tell a tale. *Country Life* November 2, **183**, No. 44: 144–145.
- HITCH, C.J.B. 1990. City diary — London II. *Bull. Br. Lichen Soc.* **67**: 18–20.: [Barnes, Putney, Wimbledon].
- HITCH, C.J.B. 1992. City diary. *Bull. Br. Lichen Soc.* **71**: 19–21. [Harrow Weald].
- HONEY, M.R., LEIGH, C. and BROOKS, S.J. 1998. The fauna and flora of the newly created Wildlife Garden in the grounds of The Natural History Museum, London. *Lond. Nat.* **77**: 17–47.
- JAMES, P.W., PURVIS, O.W. and DAVIES, L. 2002. Epiphytic lichens in London. *Bull. Br. Lichen Soc.*
- JAMES, P.W., WOLSELEY, P., BELL, S. and KRICKE, R. 1998. Unpublished survey reports for Kew.
- LAUNDON, J.R. 1955. The Survey of Bookham Common. Thirteenth year. Progress report. Lichens. *Lond. Nat.* **34**: 14.
- LAUNDON, J. R. 1958. The lichen vegetation of Bookham Common. *Lond. Nat.* **37**: 66–79.
- LAUNDON, J.R. 1967. A study of the lichen flora of London. *Lichenologist* **3**: 277–327.
- LAUNDON, J.R. 1970. London's lichens. *Lond. Nat.* **49**: 20–69.
- LAUNDON, J.R. 1973. Changes in the lichen flora of Bookham Common with increased air pollution and other factors. *Lond. Nat.* **52**: 82–92.
- LAUNDON, J.R. 1973. Urban lichen studies. In Ferry, B.W., Baddeley, M.S. and Hawksworth, D.L. (eds). *Air pollution and lichens*. 109–123. Athlone Press of the University of London.
- ROSE, C.I. and HAWKSWORTH, D.L. 1981. Lichen recolonization in London's cleaner air. *Nature, Lond.* **289**: 289–292.
- SMITH, A.L. 1918. *A monograph of the British lichens: Part I*. Ed. 2. British Museum (Natural History), London.
- SMITH, A.L. 1926. *A monograph of the British lichens: Part II*. Ed. 2, revised. British Museum (Natural History), London.
- PAULSON, R. 1918. Notes on the ecology of lichens with special reference to Epping Forest. *Essex Nat.* **18**: 276–286.
- PAULSON, R. and THOMPSON, P.G. 1911. Report on the lichens of Epping Forest. First paper. *Essex Nat.* **16**: 136–145.
- PAULSON, R. and THOMPSON, P.G. 1913. Report on the lichens of Epping Forest. Second paper. *Essex Nat.* **17**: 90–105.
- PAULSON, R. and THOMPSON, P.G. 1920. Supplemental report on the lichens of Epping Forest. First paper. *Essex Nat.* **19**: 27–30.
- PURVIS, O.W., COPPINS, B.J. and JAMES, P.W. 1994. *Checklist of lichens of Great Britain and Ireland*. British Lichen Society, London.

Book review

British soldierflies and their allies. Alan E. Stubbs and Martin Drake. BENHS, 2001. 512 pp., 20 colour plates, numerous text drawings. Hardbound. ISBN 1 899935 04 5. £30 plus £4.40 p&p. Available from the British Entomological & Natural History Society, The Pelham-Clinton Building, Dinton Pastures Country Park, Hurst, Reading RG10 0TH.

This important book has been long awaited by a great many British entomologists and the inevitable question is 'was it worth the longer than expected wait?' The answer, unreservedly, is 'yes'.

The book is modelled very closely on the amazingly successful *British hoverflies*, written by Alan Stubbs and illustrated by the paintings of Steve Falk in 1983. Keys to British species of flies in the families Acroceridae, Asilidae, Athericidae, Bombyliidae, Rhagionidae, Scenopinidae, Stratiomyidae, Tabanidae, Therevidae, Xylomyidae and Xylophagidae are presented in a clear, easy-to-follow format and are accompanied by drawings, placed adjacent to the key couplets, illustrating the points mentioned in the text. These keys have been thoroughly field-tested for a number of years by several people, including both expert dipterists and keen amateurs; a number of modifications to these test versions are incorporated into the published keys to render them just about as comprehensive and user-friendly as it is possible to be. I have tested the new keys on fifty species in my collection, including representatives from all the included families, and in every case the correct answer was arrived at rapidly and without any confusion or difficulty. A number of amateur entomologist friends were also asked to test the keys with specimens provided by me, and they all arrived at an identical overall conclusion. If there *are* any errors in these keys I have not found them yet!

The species accounts also follow the pattern established in the hoverfly book, providing further confirmatory characters for each species and comments on others which may appear similar, as well as outline notes on ecology and distribution.

However, there are a number of differences from and improvements over the hoverfly book. One difference is that colour photographs take the place of paintings. All that one really needs to know here is that the plates were all photographed by David Wilson: consequently, they are of the highest quality and clarity and will serve well to confirm or otherwise conclusions arrived at by using the keys and to identify all of those species for which a key is not really necessary. Improvements over the hoverfly book are dominated by the inclusion of keys to larvae (all families) and pupae (all except Stratiomyidae and Xylomyidae, which pupate within the larval skin and for which, therefore, the larval key is adequate). All chapters are furnished with a clear, concise introduction and there is a comprehensive list of references at the end of each family chapter.

I am sure that the authors would be surprised if I let them get away without any criticism at all — I have no intention of doing so! In their key to the (admittedly very difficult) females of the genus *Thereva*, the very first couplet introduces a spurious character that might cause some problems to those who are new to keys. It asks us to believe that in one group of species tergites 1 to 7 have pale hairs 'entirely so on tergites 1 to 6' (thus implying that tergite 7 is permitted to have some black hairs too), whilst in the other half of the couplet we are asked to believe that the remaining species have some black hairs on tergite 7. Fortunately, it is made clear in part 2 that the black hairs also extend forwards to previous tergites, but I think that this discussion on tergite 7 would perhaps have been better placed as a confirmatory character in the text section. Couplet 1 could easily be rewritten to ask 'Tergite 6 with or without black hairs?', since that is all we really need to know. On a more serious note, in my opinion the opportunity has been missed to place in the easily accessible English literature good, clear drawings of the genitalia of all species. Such drawings are presented for some, but not for others. Thus, for example, whilst the male genital apparatus of the species of *Sargus* are drawn (for some reason excepting *bipunctatus* though wisely including non-British species that might otherwise be overlooked), there are no such illustrations for the two species of *Chorisops*. This is unfortunate; although the yellow thoracic markings and the tergite pattern are easily visible in fresh specimens (and usually quite adequate to permit reliable separation), greasy specimens in collections cannot be named using this book alone.

In the days before the hoverfly book, those insects were regarded as 'difficult'. The book made them 'easy' and popularized the group. As a direct result of the increased number of people looking at hoverflies, a dozen new species were added to the British fauna and the publication of comprehensive distribution maps was made possible. The book went through several reprints and even as I type this review certain sections are being rewritten to take account of newly discovered British species or those which might perhaps be found here. I confidently predict that we are now embarking upon a similar journey for what have been referred to as the 'larger Brachycera'. Anyone with any interest in these attractive and fascinating insects will find this book invaluable. We now await, with eager anticipation, the work on crane flies which we all hope Alan will give to us fairly soon.

COLIN W. PLANT

Corticolous myxomycetes from central London — 2

BRUCE ING

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Abstract

Sixty-nine species of myxomycetes have been recorded from the bark of living trees within a ten-kilometre radius of Charing Cross. Many are new records for the London area and suggest a continuing improvement in environmental quality. Myxomycetes occur on at least 98 per cent of bark samples in moist chamber culture. Four species occur in at least half of the sites sampled and in more than a quarter of all samples. The number of species recorded at a site is, in part, proportional to the number of tree species sampled.

Introduction

The first part of this study (Ing 1998) covered 31 sites and produced 39 species. In this final part, 81 sites have been visited and 68 species have developed in moist chambers: 38 species are common to both lists, 30 species listed below were not found in the first part of the survey but only one, *Perichaena depressa* Libert, was not found again. Two sites appear in both parts, thus the total number of myxomycete species found in moist chambers from a grand total of 110 sites is 69, this being approximately one sixth of the British list.

As the project developed it became clear that the species of host tree may determine which myxomycetes grow on the bark. It was decided to test this by sampling, where possible, all the tree species growing at a single site. The Royal Botanic Gardens at Kew has a collection of some 1,500 species of trees and shrubs and these are being systematically sampled. Over 300 species have been studied to date and the results are incorporated below. The Kew project is expected to be completed in 2004 and should allow an objective analysis of the relationship between tree species and bark myxomycetes.

The sites studied in both parts of the investigation are shown in Figure 1 and the number of species of bark myxomycetes found in each tetrad is shown in Figure 2. The significance of these results is discussed below. Nomenclature follows Ing (1999a). Although several familiar names will have to be changed following the work of Lado (2001), these changes are not adopted here so as to allow continuity between the two parts of this study.

Sites

(with 1-km grid squares, all in TQ)

- BCE — Barnes Common East, 2275, bark collected March 1999.
- BCN — Barnes Common North, 2276, bark collected March 1999.
- BCW — Barnes Common West, 2175, bark collected March 1999.
- BGP — Burgess Park, 3377, bark collected May 2002.
- BHF — Bunhill Fields, 3282, bark collected April 1999.
- BMP — Brookmill Park, 3776, bark collected May 2002.
- BPN — Brockwell Park North, 3174, bark collected March 1999.
- BPS — Brockwell Park South, 3173, bark collected March 1999.

- CHC — Clapham Common, 2874, bark collected 1998 and 1999.
 CMF — Coram's Fields, 3082, bark collected November 1998.
 CPC — Clapton Common, 3487, bark collected November 1998.
 CPP — Crystal Palace Park, 3471, bark collected March 1999.
 CPS — Clapton Square, 3585, bark collected November 1998.
 CTW — Cherry Tree Wood, 2789, bark collected March 1999.
 CWH — Chiswick House, 2077, bark collected March 1999.
 DFP — Deptford Park, 3678, bark collected March 1999.
 DHP — Downhills Park, 3289, bark collected May 2002.
 DKC — Duckett's Common, 3189, bark collected April 1999.
 DWP — Dulwich Park, 3373, bark collected May 2002.
 ELC — East London Cemetery, 3982, bark collected February 2002.
 FGN — Fortune Green, 2585, bark collected April 1999.
 FGY — Fortune Green Cemetery, 2485, bark collected April 1999.
 GBP — Gunnersbury Park, 1878, bark collected February 2002.
 GPO — Gospel Oak Park, 2885, bark collected April 1999.
 GSP — Gladstone Park, 2285, bark collected May 2002.
 GWP — Greenwich Park, 3877, bark collected 1998 and 1999.
 HGW — Highgate Wood, 2888, bark collected March 1999.
 HHH — Hampstead Heath, 2786, bark collected March 1999.
 HHN — Hampstead Heath North, 2687, bark collected March 1999.
 HHW — Hampstead Heath West, 2586, bark collected March 1999.
 HKD — Hackney Downs, 3485, bark collected November 1998.
 HKM — Hackney Marsh, 3686, bark collected February 2002.
 HLF — Hilly Fields, 3775, bark collected May 2002.
 HLP — Holland Park, 2479, bark collected November 1998.
 HMP — Horniman Museum Park, 3473, bark collected May 2002.
 HNP — Hendon Park, 2388, bark collected November 1998.
 ILG — Island Gardens, 3878, bark collected November 1998.
 KEP — King Edward Park, 3580, bark collected April 1999.
 KGW — Kensington Gardens West, 2580, bark collected November 1998.
 KGY — Kensal Green Cemetery, 2382, bark collected April 1999.
 KSG — Kensal Green, 2382, bark collected April 1999.
 KTV — Kingston Vale, 2171, bark collected February 2000.
 LIF — Lincoln's Inn Fields, 3081, bark collected November 1998.
 LTS — Leytonstone Forest, 3986, bark collected February 2002.
 MEP — Mile End Park, 3681, bark collected April 1999.
 MWH — Muswell Hill, 2889, bark collected March 1999.
 NWG — Newington Green, 3285, bark collected April 1999.
 NWP — Norwood Park, 3271, bark collected March 1999.
 OOC — Old Oak Common, 2181, bark collected March 1999.
 PHF — Parliament Hill Fields, 2785, bark collected March 1999.
 PNH — Putney Heath, 2372, bark collected February 2000.
 PRC — Peckham Rye Common, 3475, bark collected November 1998.
 QNP — Queen's Park, 2483, bark collected April 1999.
 RBG — Royal Botanic Gardens, Kew, 1877, bark collected from 1998 to 2002.
 RKP — Ruskin Park, 3275, bark collected March 1999.
 RMP — Richmond Park, 2072, bark collected February 2000.
 RPW — Regent's Park West, 2782, bark collected November 1998.
 SCN — Streatham Common North, 3170, bark collected March 1999.
 SFP — Springfield Park, 3487, bark collected November 1998.
 SJW — St James's Park, Walthamstow, 3688, bark collected February 2002.
 SLS — St Luke's Square, Canning Town, 3981, bark collected February 2002.
 SWP — Southwark Park, 3579, bark collected March 1999.
 TGH — Telegraph Hill, 3576, bark collected May 2002.
 TGN — Turnham Green, 2178, bark collected February 1999.
 THR — Tottenham Hale recreation ground, 3489, bark collected May 2002.
 TSG — Tabard Street Gardens, 3279, bark collected March 1999.
 VPN — Victoria Park North, 3684, bark collected November 1998.
 VPS — Victoria Park South, 3683, bark collected November 1998.

- VPW — Victoria Park West, 3583, bark collected November 1998.
VTG — Victoria Tower Gardens, 3079, bark collected November 1998.
WBC — Wimbledon Common, 2271, bark collected February 2000.
WBP — Wimbledon Park, 2472, bark collected March 1999.
WCN — Wandsworth Common North, 2774, bark collected March 1999.
WCS — Wandsworth Common South, 2773, bark collected March 1999.
WHE — West Ham Park East, 4084, bark collected February 2002.
WHG — Walham Green, 2576, bark collected April 1999.
WHW — West Ham Park West, 3984, bark collected February 2002.
WLP — Waterlow Park, 2887, bark collected March 1999.
WSF — Wanstead Flats, 4086, bark collected February 2002.
WWP — Wandsworth Park, 2475, bark collected March 1999.
WWS — Wormwood Scrubs, 2281, bark collected March 1999.

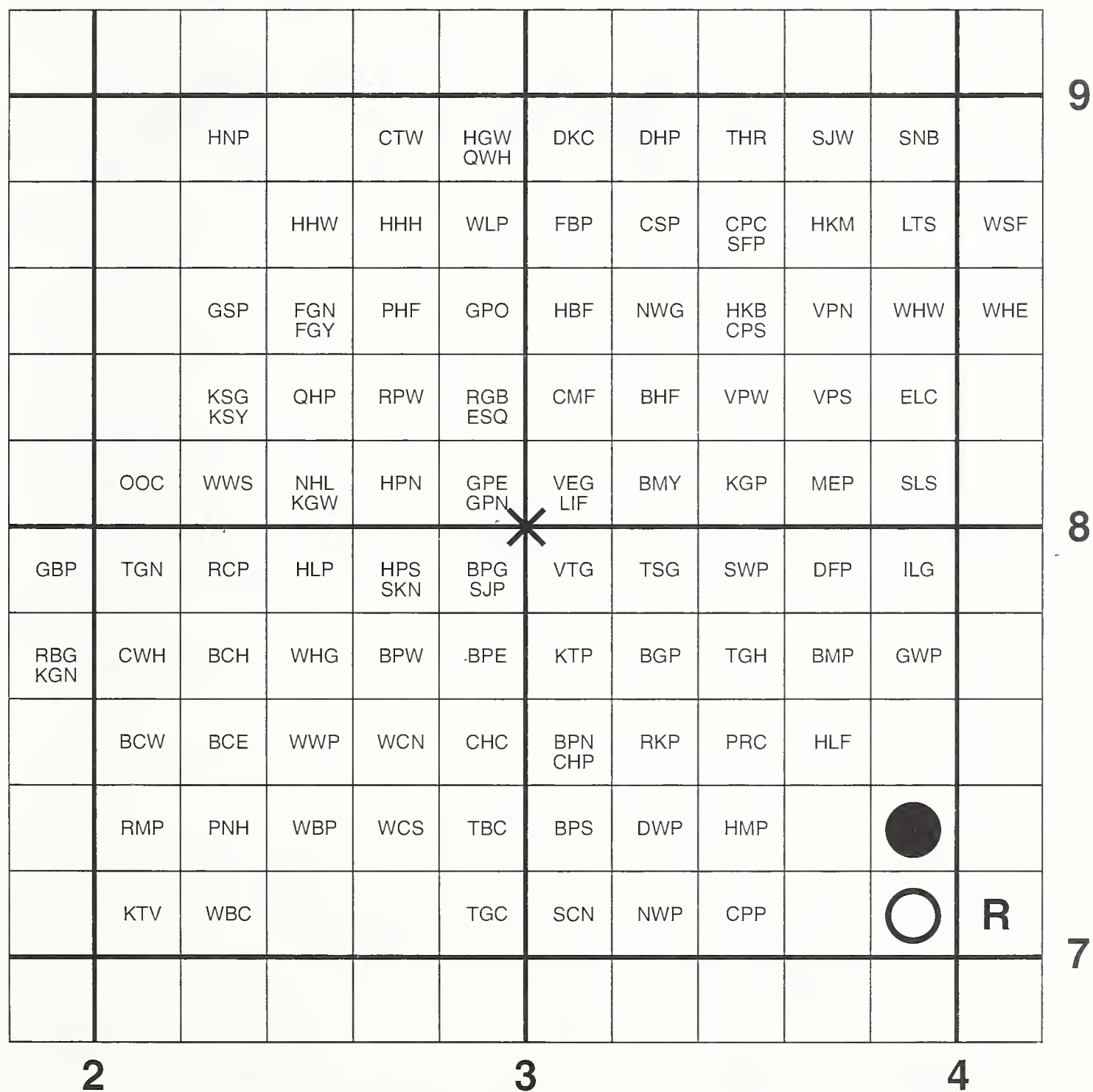


FIGURE 1. Grid map of the study area showing the location of sites with abbreviations. The 10-km squares TQ 27, 28, 37 and 38 are completely involved, with a margin of tetrads from surrounding 10-km squares: the smaller squares are tetrads.

- ✕ — Charing Cross; ● — species recorded in the tetrad from bark of living trees; ○ — species recorded in the tetrad from another substrate, not on trees; R — species recorded from adjacent 10-km square but not adjacent tetrad.

Arcyria pomiformis (Leers)Rostaf. (B)
On *Abies*, *Aesculus*, *Alnus*, *Betula*, *Castanea*, *Cunninghamia*, *Fraxinus*, *Laburnum*, *Larix*, *Ligustrum*, *Liquidambar*, *Magnolia*, *Nothofagus*, *Nyssa*, *Pinus*, *Platycladus*, *Pterocarya*, *Populus*, *Pyrus*, *Quercus*, *Salix*, *Sorbus*, and *Toona*.
BCE, BCN, BCW, BHF, CHC, CMF, CPS, CWH, DKC, ELC, GBP, HHH, HHW, HLP, HMP, KEP, LTS, NWG, PHF, PRC, RBG, RKP, RMP, SCN, SJW, SLS, TGH, VPS, VPW, WBC. (Figure 4.)

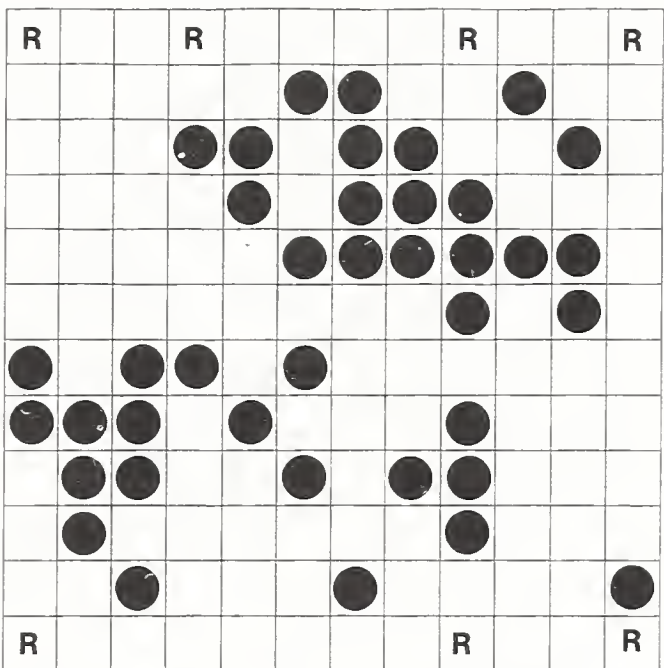
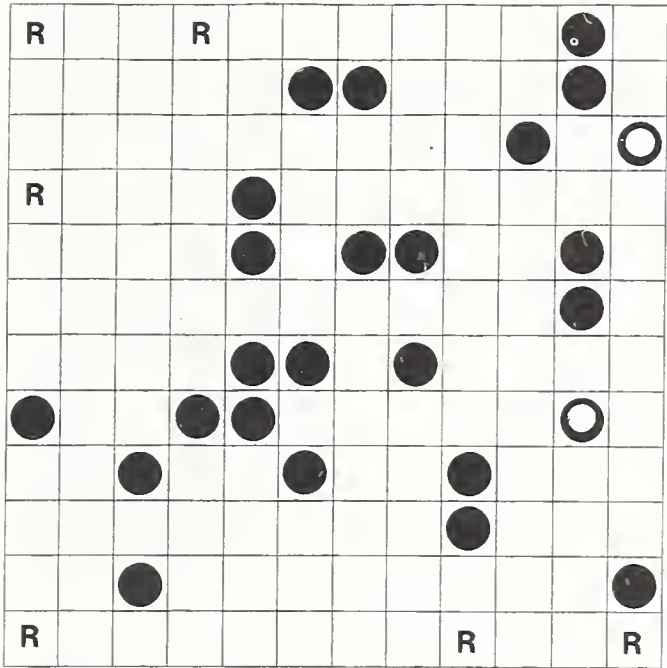


FIGURE 3. Distribution of *Arcyria cinerea* in central London.

FIGURE 4. Distribution of *Arcyria pomiformis* in central London.

Badhamia affinis Rostaf. (A)
On *Betula* and *Quercus*.
RBG.
A widespread Atlantic species which is understandably rare in south-east England, being known previously from Sussex and Kent. There is a slide in Hb. BM, of a specimen collected from a living beech trunk at Kew in 1925 by V. Wiltshire and this is mentioned in Lister Notebook 43; it was the only previous record from Surrey.

Badhamia foliicola Lister (B)
On *Quercus*.
CPP, VPN. (Figure 5.)

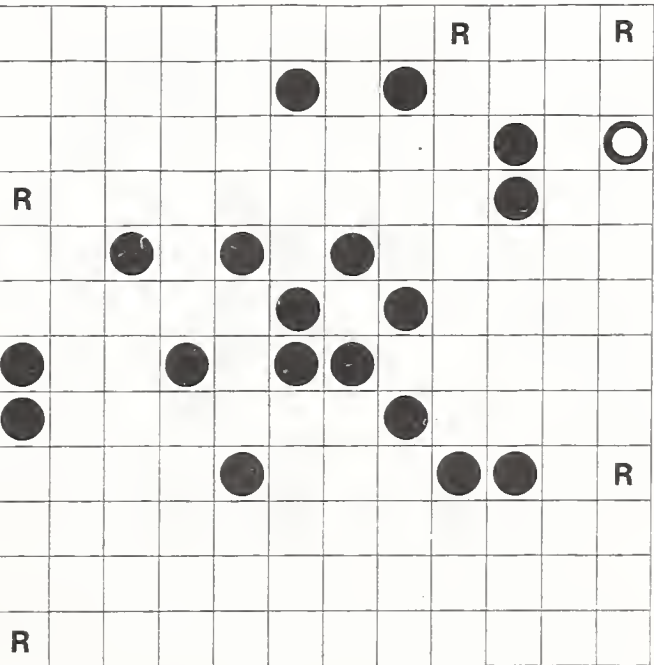
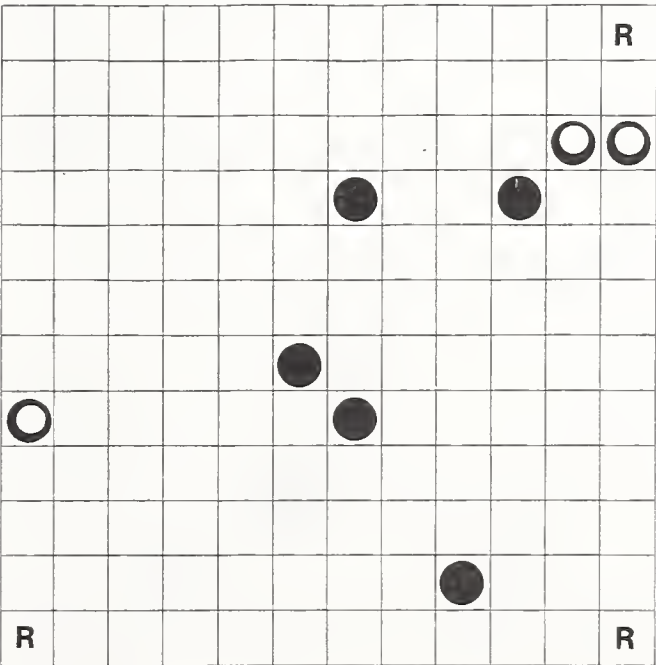


FIGURE 5. Distribution of *Badhamia foliicola* in central London.

FIGURE 6. Distribution of *Calomyxa metallica* in central London.

Badhamia macrocarpa (Ces.)Rostaf. (B)
On *Pinus*.
RBG.

An uncommon species on fallen bark, especially of branches; rather rare in bark cultures. Widespread in the London area but, until the current find in 2002, not seen since 1963 in our region.

Badhamia panicea (Fr.)Rostaf. (B)
On *Fraxinus* and *Salix*.
RBG.

A widespread species on dead wood, especially of *Fagus*, but not rare in bark cultures.

Calomyxa metallica (Berk.)Niewland (A)
On *Acer*, *Aesculus*, *Fraxinus*, *Ilex*, *Lindera*, *Populus*, *Prumnopitys*, *Sambucus*, *Tilia*, *Toona*, *Ulmus* and *Zelkova*.
BGP, CMF, DHP, GBP, HKM, HLF, HLP, KSG, MWH, PRC, RBG, RPW, VPN, WCN. (Figure 6.)

Clastoderma debaryanum Blytt (A)
On *Tilia*.
RBG.
New to v.c. 17. A rare species, previously unknown in the London area but recorded from Sussex and Hertfordshire. It is common in the tropics, where it usually occurs on woody debris, such as coconut husks.

Comatricha ellae Härkönen (A)
On *Quercus*.
KTV, PNH.
New to v.c. 17.

Comatricha laxa Rostaf. (B)
On *Acer*, *Aesculus*, *Araucaria*, *Castanea*, *Cedrus*, *Chamaecyparis*, *Larix*, *Nothofagus*, *Picea*, *Pinus*, *Populus*, *Robinia* and *Salix*.
BPN, BPS, CMF, HKM, HMP, LIF, NWG, OOC, RBG, RPW, SJW, TGH, THR, TSG, WBP. (Figure 7.)

Comatricha nigra (Pers.)Schröt. (C)
On *Acer*, *Aesculus*, *Cedrus*, *Chamaecyparis*, *Diospyros*, *Fitzroya*, *Fraxinus*, *Pseudolarix*, *Sciadopitys* and *Tilia*.
BPN, BPS, CPP, RBG, TSG. (Figure 8.)

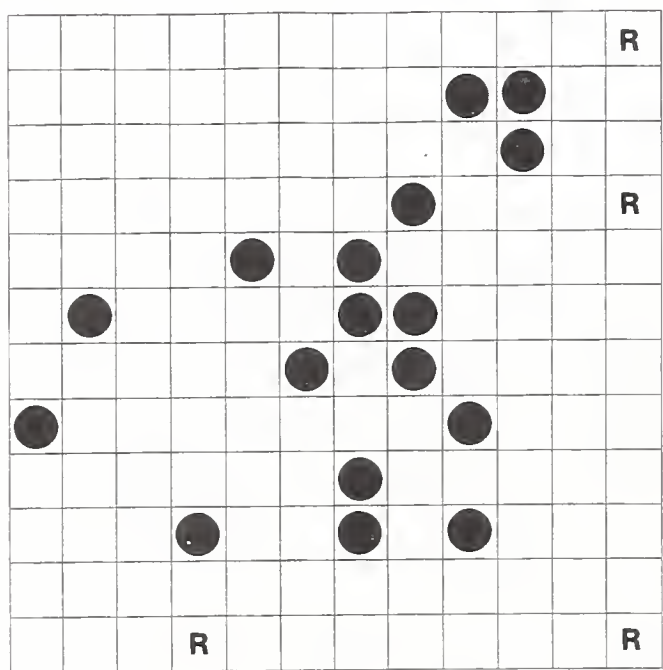


FIGURE 7. Distribution of *Comatricha laxa* in central London.

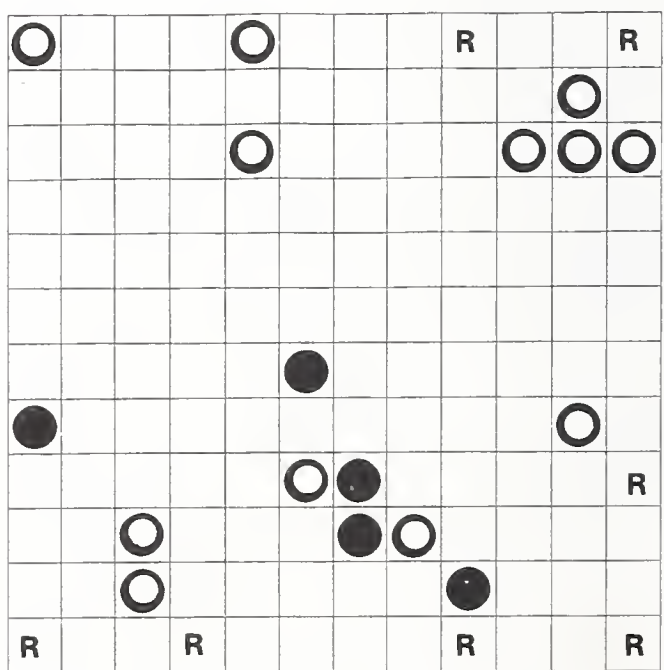


FIGURE 8. Distribution of *Comatricha nigra* in central London.

Comatricha rigidireta Nann.-Bremek. (A)

On *Cedrus*, *Cupressus*, *Gleditsia*, *Juglans*, *Picea*, *Populus*, *Robinia*, *Salix* and *Taxodium*.
BMP, BPS, CPC, GWP, HHH, HKM, HLP, HMP, KEP, PRC, RBG, SJW, SLS,
VPN, WBP, WHW, WWP. (Figure 9.) New to v.c 16.

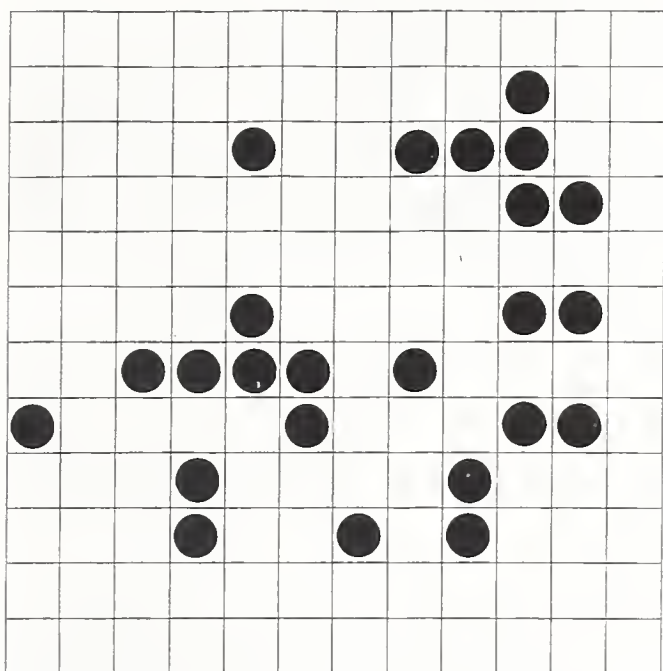


FIGURE 9. Distribution of *Comatricha rigidireta* in central London.

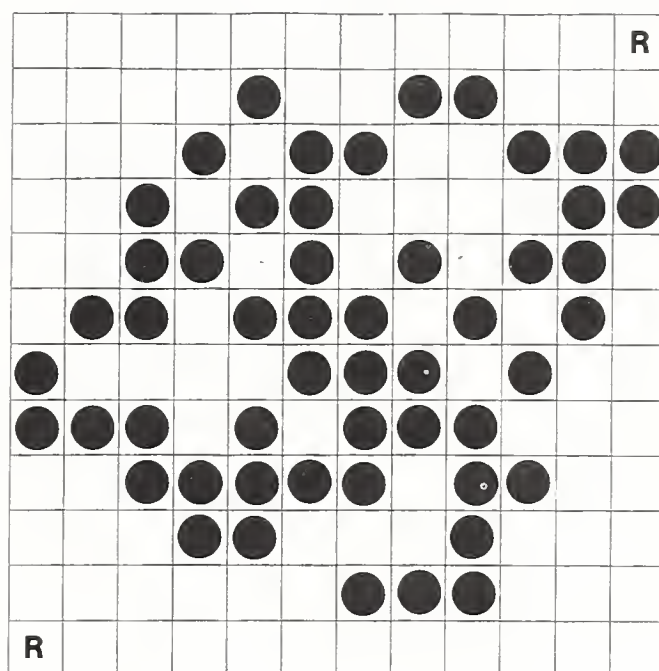


FIGURE 10. Distribution of *Echinostelium brooksii* in central London.

Diderma effusum (Schw.) Morgan (C)

On *Salix*.
RBG.

Didymium bahiense Gottsberger (C)

On *Platanus*.
CHC.

The commonest taxon in the *D. iridis* complex; common in herbaceous debris but rarely recorded in bark cultures. Known from all counties surrounding London.

Didymium clavus (Alb. & Schw.) Rabenh. (C)

On *Alnus* and *Toona*.
RBG.

Didymium difforme (Pers.) S.F. Gray (C)

On *Aphananthe* and *Platanus*.
LIF, RBG.

One of the commonest myxomycetes in leaf litter and on herbaceous debris, not infrequently encountered in bark cultures, especially on younger bark. Abundant throughout the London area.

Didymium megalosporum Berk. & M.A. Curt. (C)

On *Sambucus*.
GBP.

A widespread litter and dung species, rather infrequent in bark cultures. Scattered throughout the London area.

Didymium squamulosum (Alb. & Schw.) Fr. (C)

On *Populus*.
RBG.

Another extremely common litter myxomycete, occasionally found on bark. Abundant throughout the London area.

Echinostelium apitectum Whitney (A)

On *Acer* and *Carpinus*.

RBG.

This single additional site confirms that this species is far less common in the London area than the similar *E. colliculosum*.

Echinostelium brooksii Whitney (A)

On *Acer*, *Arbutus*, *Betula*, *Carpinus*, *Carya*, *Celtis*, *Cladrastis*, *Cupressus*, *Diospyros*, *Fraxinus*, *Ginkgo*, *Ilex*, *Juniperus*, *Larix*, *Magnolia*, *Morus*, *Nothofagus*, *Nyssa*, *Phellodendron*, *Picea*, *Pinus*, *Populus*, *Prunus*, *Pyrus*, *Quercus*, *Robinia*, *Salix*, *Sambucus*, *Taxus*, *Tilia* and *Torreya*.

BCE, BCN, BGP, BHF, BPN, CHC, CPP, CPS, CTW, CWH, DFP, DHP, ELC, GPO, GSP, HHW, HKM, HLF, KEP, KGY, LTS, NWP, OOC, PHF, PRC, QNP, RBG, SLS, TGH, THR, TSG, VPS, VTG, WBP, WCN, WCN, WHW, WHW, WLP, WSF, WWP, WWS. (Figure 10.) New to v.c. 18.

Echinostelium colliculosum Whitney & Keller (A)

On *Abies*, *Alnus*, *Betula*, *Carpinus*, *Cupressus*, *Eucalyptus*, *Fraxinus*, *Picea*, *Taxodium*, *Tilia* and *Zelkova*.

BMP, CHC, CWH, DFP, ELC, GBP, HLP, KGW, LIF, NWP, PHF, PNH, PRC, RBG, RMP, RPW, TSG, VPN, VPS, VPW, VTG, WHE, WLP, WWS. (Figure 11.)

Echinostelium corynophorum Whitney (A)

On *Alnus*, *Arbutus*, *Celtis*, *Cephalotaxus*, *Cladrastis*, *Diospyros*, *Eucalyptus*, *Fraxinus*, *Larix*, *Morus*, *Ostrya*, *Parrotia*, *Picea*, *Pinus*, *Platanus*, *Populus*, *Salix*, *Taxodium* and *Tilia*.

BGP, BPS, CWH, DFP, ELC, GWP, HHH, KGW, OOC, PHF, RBG, RKP, RPW, SFP, TSG, VPN, VPS, WCS, WHE, WHG, WSF, WWS. (Figure 12.) New to v.c. 18.

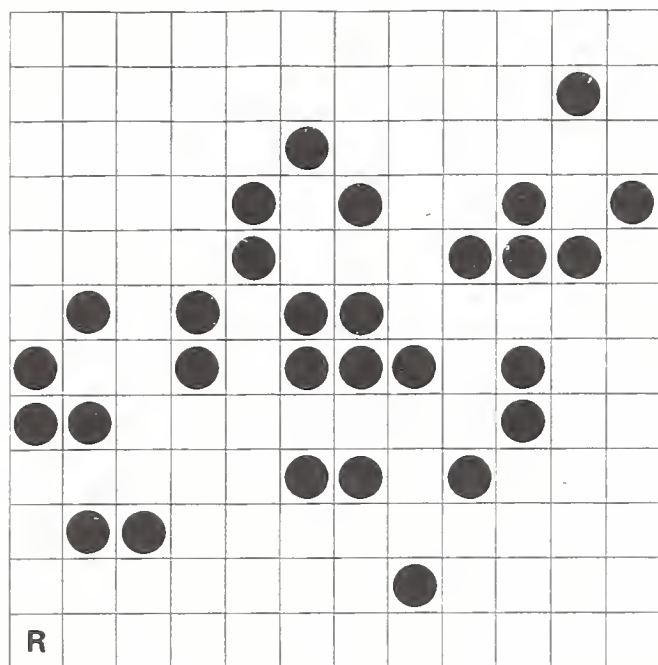


FIGURE 11. Distribution of *Echinostelium colliculosum* in central London.

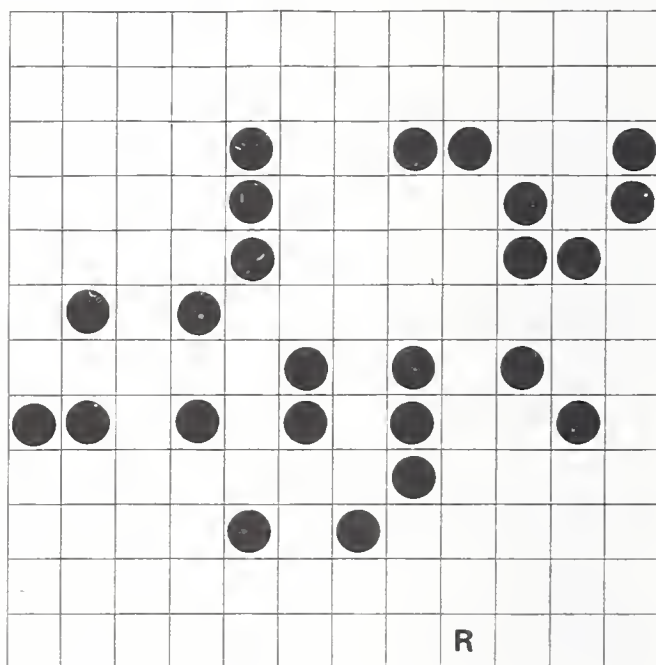


FIGURE 12. Distribution of *Echinostelium corynophorum* in central London.

Echinostelium fragile Nann.-Bremek. (A)

On *Acer*, *Aesculus*, *Carya*, *Corylus*, *Fagus*, *Fraxinus*, *Phellodendron*, *Populus*, *Quercus*, *Sambucus*, *Tilia*, *Tsuga*, *Ulmus* and *Zelkova*.

BHF, CHC, CMF, CPC, CPS, GBP, GPO, GWP, HKD, HKM, HLF, ILG, LTS, MWH, PHF, PRC, RBG, RKP, TGH, TGN, THR, TTG, VPN, VPS, VPW, WBP, WHG, WHW. (Figure 13.)

Echinostelium minutum de Bary (A)

On *Alnus*, *Arbutus*, *Carpinus*, *Castanea*, *Cornus*, *Magnolia*, *Metasequoia*, *Nothofagus*, *Ostrya*, *Pinus*, *Populus*, *Quercus*, *Salix*, *Taxodium* and *Ulmus*.

BCN, BGP, BMP, ELC, GBP, GSP, GWP, HGW, HHN, HLF, ILG, KGY, LIF, PNH, RBG, RMP, SWP, WBC, WHE, WLP. (Figure 14.)

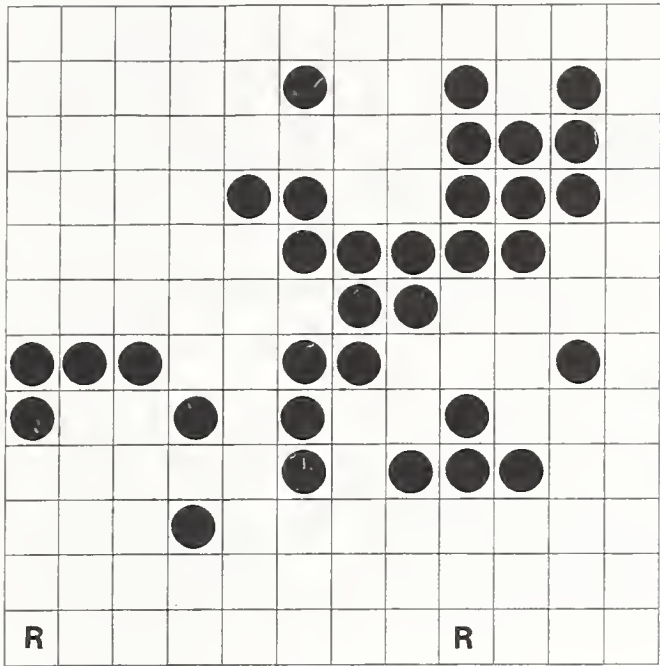


FIGURE 13. Distribution of *Echinostelium fragile* in central London.

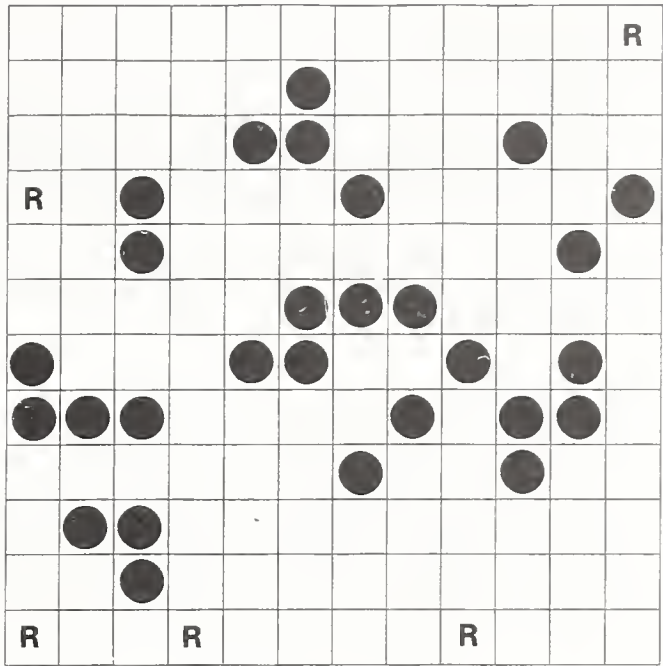


FIGURE 14. Distribution of *Echinostelium minutum* in central London.

Enerthenema papillatum (Pers.)Rostaf. (B)

On *Acer*, *Betula*, *Cephalotaxus*, *Chamaecyparis*, *Cryptomeria*, *Fitzroya*, *Pinus*, *Populus*, *Pterocarya*, *Quercus*, *Sorbus*, *Taxus*, *Tilia*, *Torreya* and *Tsuga*.

BCE, BHF, CTW, CWH, GWP, HGW, HHH, HHN, HHW, KTV, RBG, RMP, SLS, TSG, VPN, WBC. (Figure 15.)

The additional records listed here suggest that this woodland species is more common on the outskirts of the city and less likely to be found in small urban parks.

Hemitrichia minor G. Lister (B)

On *Platanus*,
RBG.

New to v.c. 17, although subsequently recorded from Esher Common; known from Essex and Middlesex but outside the area of this survey. Usually associated with liverworts and thus unlikely in most parts of central London.

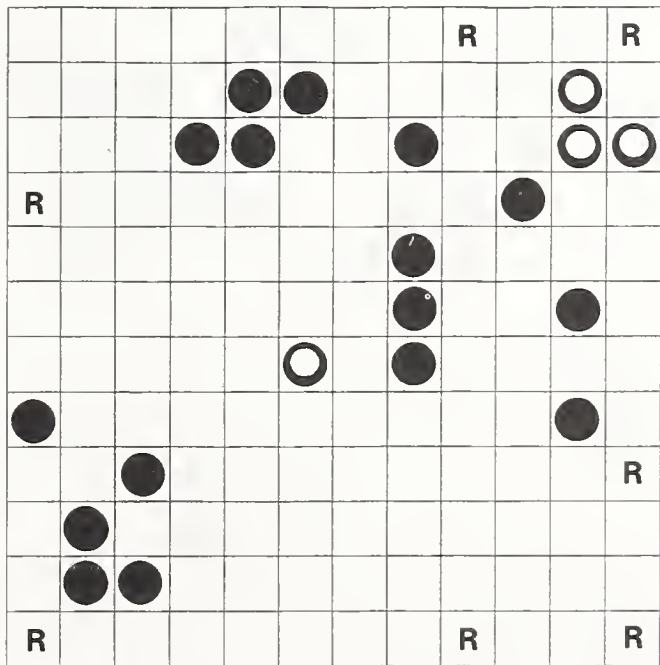


FIGURE 15. Distribution of *Enerthenema papillatum* in central London.

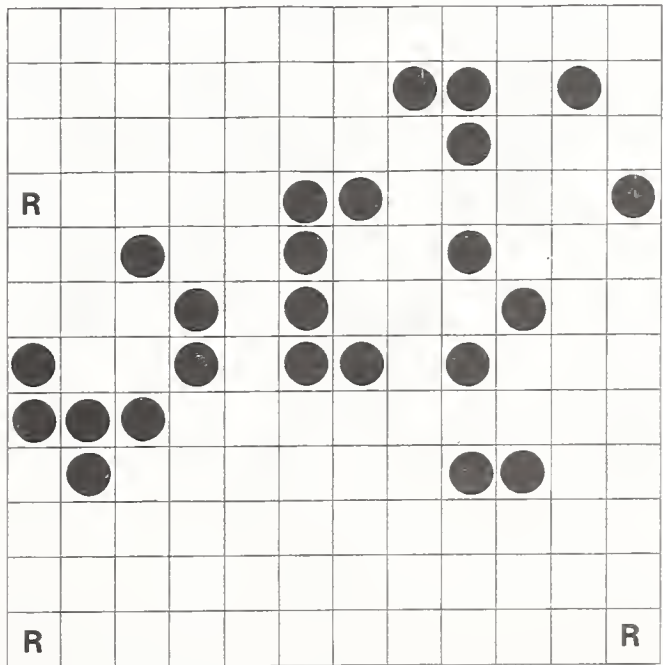


FIGURE 16. Distribution of *Licea biforis* in central London.

Licea eleanorae Ing (A)On *Juniperus* and *Tilia*.

HLP, RBG.

New to v.c. 17 and 21 and England, previously known from two locations in Switzerland and two in Scotland, on *Platanus* and *Ulmus* respectively, but recently found in Worcestershire, on *Platanus*, June 2002; described from the shores of Lake Lugano (Ing 1999).

Licea erddigensis Ing (A)On *Salix* and *Prumnopitys*.

RBG.

New to v.c. 17 and the London area; previously known from a few sites in Wales and Scotland.

Licea inconspicua Keller & Brooks (A)On *Acer*, *Aesculus*, *Fraxinus*, *Morus*, *Pinus*, *Quercus*, *Taxodium*, *Taxus* and *Tilia*.

HMP, PHF, PRC, RBG. (Figure 18.)

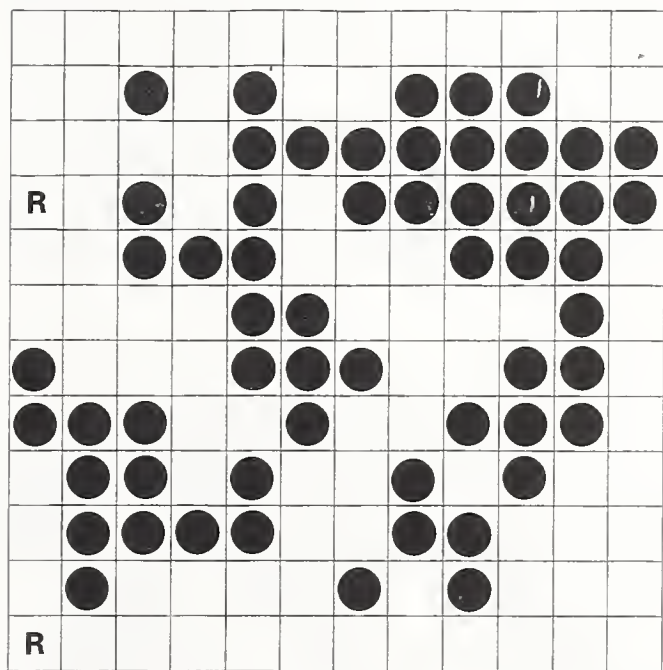
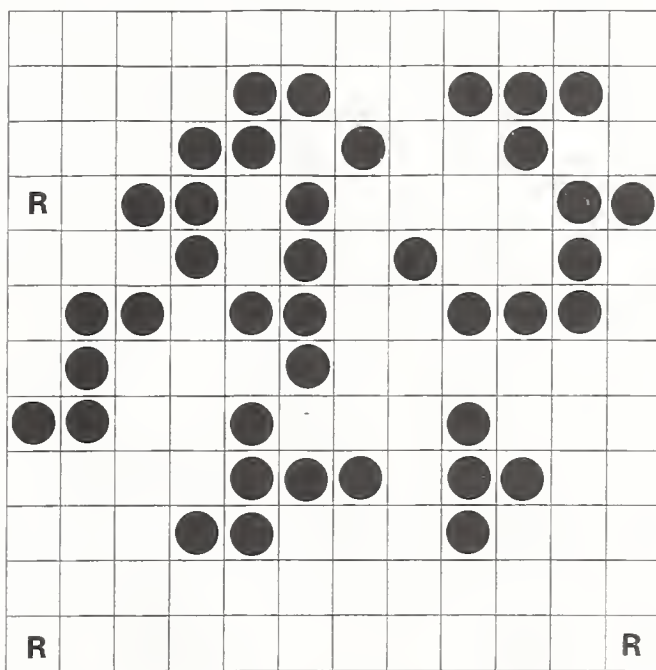
New to v.c. 17.

Licea kleistobolus G.W. Martin (A)

On *Arbutus*, *Betula*, *Calocedrus*, *Carpinus*, *Carya*, *Castanea*, *Cedrus*, *Celtis*, *Cephalotaxus*, *Chamaecyparis*, *Cladrastis*, *Cornus*, *Corylus*, *Cunninghamia*, × *Cupressocyparis*, *Cupressus*, *Diospyros*, *Eucalyptus*, *Eucommia*, *Fitzroya*, *Fraxinus*, *Gymnocladus*, *Ilex*, *Juglans*, *Juniperus*, *Koelreuteria*, *Larix*, *Lindera*, *Liquidambar*, *Magnolia*, *Morus*, *Nothofagus*, *Nyssa*, *Ostrya*, *Phellodendron*, *Picea*, *Prunus*, *Robinia*, *Sequoiadendron*, *Sorbus*, *Taxodium*, *Thuja*, *Tilia*, *Torreya*, *Tsuga*, *Ulmus* and *Zelkova*.

BCE, BCN, BCW, BMP, CPP, CPS, CTW, DHP, DKC, DWP, ELC, GBP, GSP, GWP, HHH, HHN, HKM, HLF, HMP, HWP, ILG, KGY, KTV, LTS, NWG, PHF, PNH, QNP, RBG, RKP, RMP, RPW, SCN, SFP, SJW, SLS, TGH, THR, VPN, VPS, VPW, VTG, WBP, WCN, WCS, WHE, WHW, WLP, WSF. (Figure 19.)

New to v.c. 18.

FIGURE 19. Distribution of *Licea kleistobolus* in central London.FIGURE 20. Distribution of *Licea marginata* in central London.*Licea longa* Flatau (A)On *Acer*, *Alnus*, *Nothofagus* and *Salix*.

RBG.

This is the second British site, where it appeared in some abundance in November 2001. A recently described species, which is otherwise known from Sussex and Germany; new to v.c. 17. It is similar to *L. operculata* but differs in its greater size, longer, tapering stalk and netted appearance of the non-operculate sporangium.

Licea margaritacea Ing (A)
On *Magnolia*.
RBG.

This is the second known site for a species recently discovered in Dumfries (Ing, in press). It is characterized by its pearly pink iridescence and the frequently triangular shape of the sporocarps. New to v.c. 17, and England.

Licea marginata Nann.-Bremek. (A)
On *Acer*, *Betula*, *Carpinus*, *Carya*, *Celtis*, *Chamaecyparis*, *Cornus*, *Corylus*, *Crataegus*, *Cudrania*, *Fraxinus*, *Ginkgo*, *Laburnum*, *Malus*, *Metasequoia*, *Pinus*, *Platanus*, *Prunus*, *Quercus*, *Robinia*, *Taxodium*, *Taxus*, *Tilia*, *Toona*, *Tsuga* and *Zelkova*.
BHF, CHC, CTW, ELC, FGY, GPO, GSP, HHH, HHW, HKM, HLF, HMP, KEP, MEP, MWH, OOC, PRC, QNP, RBG, SJW, SLS, TGH, TGN, THR, WBP, WCN, WCS, WHE, WHW, WWS. (Figure 20.)

Licea microscopica D.W. Mitchell (A)
On *Sambucus*.
GBP, HKM, SJW.
New to v.cs. 18 and 21. Widely distributed in south-east England and previously recorded in Surrey from Esher Common.

Licea minima Fr. (B)
On *Castanea*, *Fraxinus* and *Taxus*.
HLF, RBG.

Licea operculata (Wingate)G.W. Martin (A)
On *Acer*, *Carpinus*, *Corylus*, *Fraxinus*, *Nothofagus*, *Quercus*, *Sorbus*, *Tilia* and *Ulmus*.
BCN, BGP, CPC, CWH, DKC, GPO, GSP, HKM, KEP, LTS, MEP, NWP, RBG, RMP, SCN, SWP, VPS, WWS. (Figure 21.)
New to v.c. 18; these new records suggest that this, hitherto rare, species is on the increase.

Licea parasitica (Zukal)G.W. Martin (A)
On *Alnus*, *Aphananthe*, *Betula*, *Carpinus*, *Carya*, *Castanea*, *Celtis*, *Cephalotaxus*, *Cladrastis*, *Cornus*, *Corylus*, *Cudrania*, *Fagus*, *Ginkgo*, *Gleditsia*, *Ilex*, *Juglans*, *Juniperus*, *Ligustrum*, *Magnolia*, *Malus*, *Morus*, *Nothofagus*, *Picea*, *Pinus*, *Populus*, *Prunus*, *Quercus*, *Robinia*, *Sorbus*, *Taxus*, *Thuja*, *Toona*, *Tsuga*, *Ulmus* and *Zelkova*.
BCE, BGP, BHF, BMP, BPN, CHC, CMF, CPC, CPP, CPS, CTW, CWH, DFP, DHP, DKC, DWP, ELC, FGN, FGY, GBP, GPO, GSP, GWP, HGW, HHH, HHW, HKD, HKM, HLF, HMP, HNP, ILG, KEP, KGW, KGY, KTV, LIF, LTS, MEP, MWH, NWG, NWP, OOC, PHF, PNH, PRC, QNP, RBG, RKP, RMP, SCN, SJW, SLS, SWP, TGH, TGN, THR, VPS, WBC, WBP, WCN, WCS, WHE, WHG, WHW, WLP, WSF, WWP, WWS. (Figure 22.)

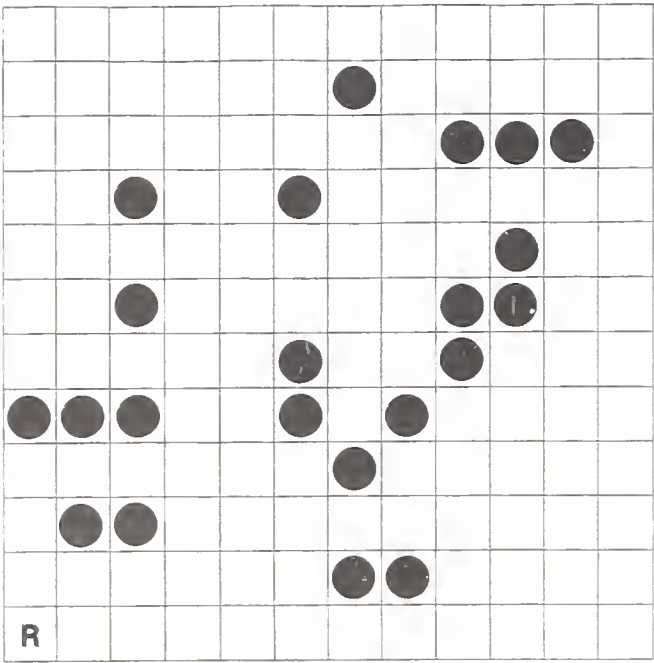


FIGURE 21. Distribution of *Licea operculata* in central London.

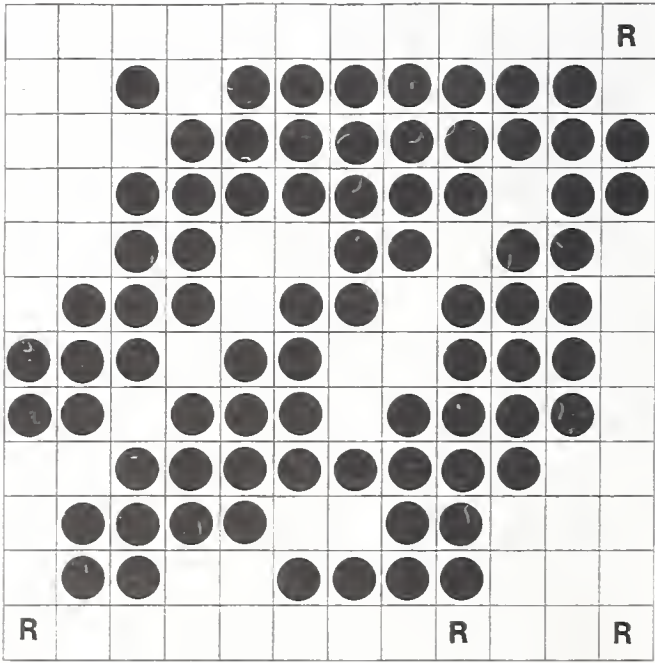


FIGURE 22. Distribution of *Licea parasitica* in central London.

Licea pedicellata (H.C.Gilbert)H.C.Gilbert (A)

On *Prumnopitys*.

RBG.

New to v.c. 17, this is generally a rare species.

Licea perexigua Brooks & Keller (A)

On *Acer* and *Prumnopitys*.

BCW, RBG.

New to v.c. 17 and south-east England, a rare species scattered across the British Isles, mainly in the west.

Licea pusilla Schrad. (B)

On *Acer*, *Alnus*, *Picea* and *Quercus*.

CMF, LIF, RBG, VPW.

New to v.c. 21.

Licea pygmaea (Meylan)Ing (A)

On *Acer*, *Carya*, *Celtis*, *Koelreuteria*, *Metasequoia*, *Picea*, *Taxus* and *Tilia*.

CPS, GPO, LIF, LTS, RBG, WWP. (Figure 23.)

New to v.c. 18; the records from this survey are the only ones known from south-east England.

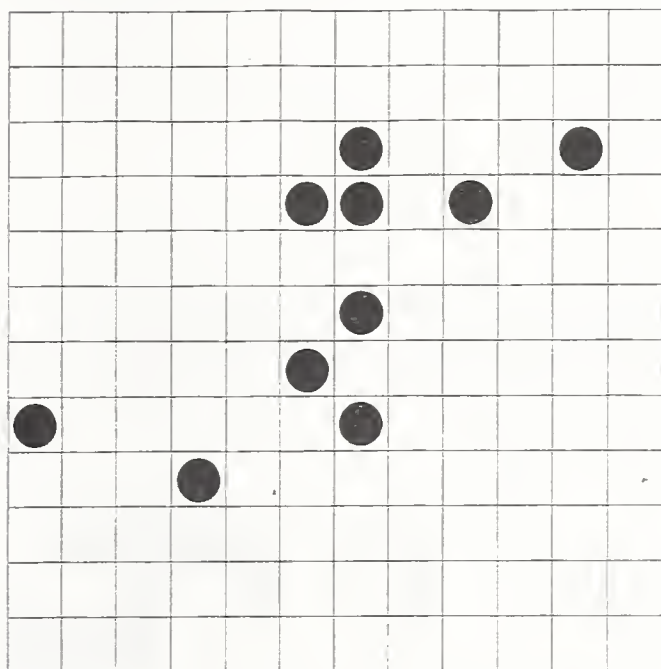


FIGURE 23. Distribution of *Licea pygmaea* in central London.

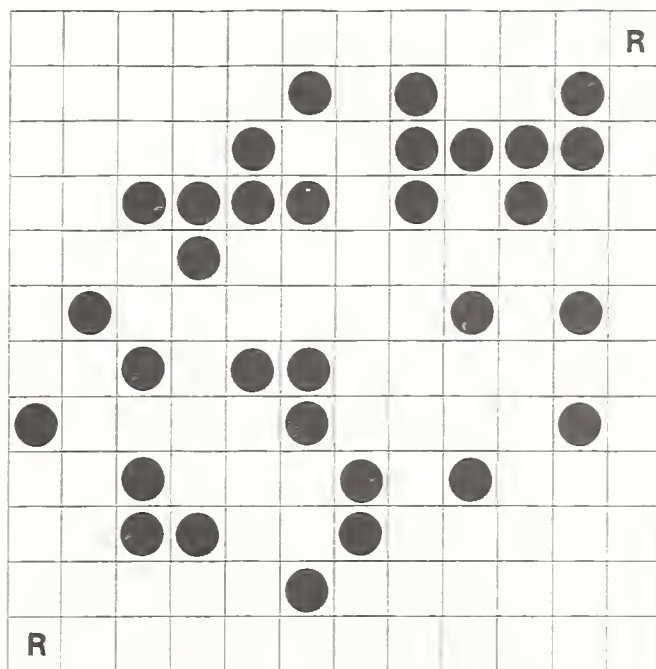


FIGURE 24. Distribution of *Paradiacheopsis cribrata* in central London.

Licea sambucina D.W. Mitchell (A)

On *Fraxinus* and *Sambucus*.

HKM, RBG.

New to v.c. 21; a recently described species which is usually found on *Sambucus*, this has been recorded from several sites in Kent and Sussex and two localities in Surrey; in the United States it has been found on *Prunus*.

Licea scyphoides Brooks & Keller (A)

On *Acer*, *Corylus*, *Koelreuteria*, *Morus*, *Platanus* and *Tilia*.

GPO, GSP, HLP, RBG, SCN.

Licea tenera Jahn (A)

On \times *Cupressocyparis*.

RBG.

This rare species is also known from Mickleham in Surrey.

Licea testudinacea Nann.-Bremek. (A)

On *Alnus*, *Aphananthe* and *Quercus*.

RBG.

New to v.c. 17.

Macbrideola cornea (G. Lister & Cran)Alexop. (A)

On *Cornus* and *Platanus*.
RBG.

New to v.c. 17. A typical member of the Atlantic bark community, usually associated with epiphytic mosses and thus likely to be rare in the drier parts of central London; recorded from rural Kent.

Paradiacheopsis cribrata Nann.-Bremek. (A)

On *Abies*, *Carya*, *Cornus*, *Diospyros*, *Fraxinus*, *Juglans*, *Koelreuteria*, *Picea*, *Pinus*, *Populus*, *Prunus*, *Pseudolarix*, *Robinia*, *Sophora*, *Taxodium* and *Ulmus*.
BCE, BPN, BPS, CPC, DHP, FGN, GPO, GSP, GWP, HGW, HHH, HHN, HKM, KEP, NWG, OOC, PHF, PNH, PRC, QNP, RBG, SLS, VPN, WBP. (Figure 24.)

Paradiacheopsis fimbriata (G. Lister & Cran)Hertel (A)

On *Abies*, *Betula*, *Carpinus*, *Carya*, *Cephalotaxus*, *Chamaecyparis*, *Cladrastis*, *Cornus*, *Corylus*, *Cotinus*, *Cryptomeria*, *Cupressus*, *Fagus*, *Fitzroya*, *Ginkgo*, *Gleditsia*, *Ilex*, *Juglans*, *Koelreuteria*, *Larix*, *Liriodendron*, *Lithocarpus*, *Magnolia*, *Nothofagus*, *Nyssa*, *Picea*, *Pinus*, *Prunus*, *Pseudolarix*, *Pseudotsuga*, *Taxodium*, *Taxus*, *Thuja*, *Torreya*, *Tsuga* and *Zelkova*.
BCE, BCN, BCW, BHF, BMP, BPN, BPS, CPC, CPP, CTW, DHP, DWP, ELC, FGN, GPO, GSP, GWP, HGW, HHH, HHN, HHW, HKM, HLF, HMP, HNP, ILG, KGY, KTV, LIF, LTS, MEP, NWG, NWP, OOC, PHF, PNH, PRC, RBG, RKP, RPW, SCN, SFP, SJW, SLS, SWP, TGH, TGN, THR, TSG, VPN, VPS, WBC, WBP, WCN, WCS, WHE, WHG, WLP, WWP. (Figure 25.)

Paradiacheopsis microcarpa (Meylan)D.W. Mitchell (A)

On *Fitzroya*, *Populus*, *Prunus*, *Pterocarya*, *Robinia* and *Tilia*.
RBG, VPN.
New to v.c. 17.

Paradiacheopsis solitaria (Nann.-Bremek.)Nann.-Bremek. (A)

On *Alnus*, *Carpinus*, *Cedrus*, *Cephalotaxus*, *Chamaecyparis*, *Cornus*, *Cupressus*, *Juglans*, *Larix*, *Picea*, *Pseudolarix*, *Pterocarya*, *Sophora*, *Taxodium*, *Taxus*, *Tsuga* and *Ulmus*.
BMP, CTW, DHP, DWP, HGW, HHH, HHN, HKM, HLP, HMP, KTV, PNH, RBG, SCN, SJW, SLS, THR, VPN, WBP, WHE, WHW. (Figure 26.)

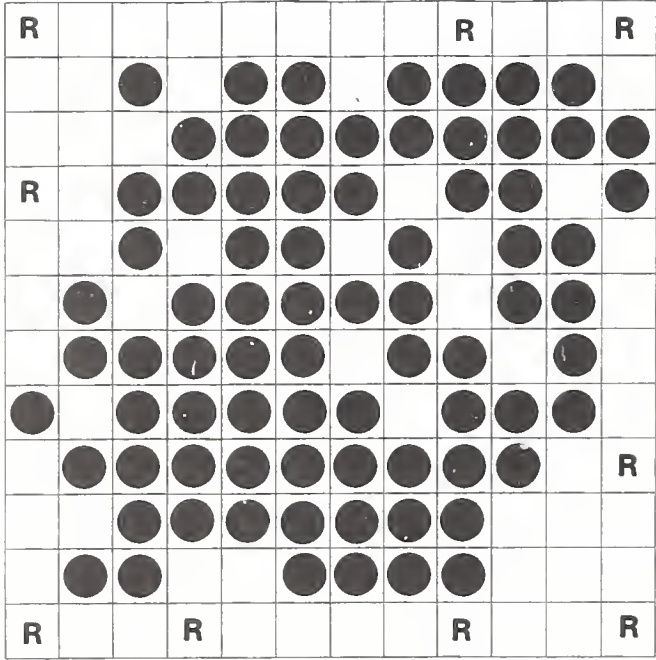


FIGURE 25. Distribution of *Paradiacheopsis fimbriata* in central London.

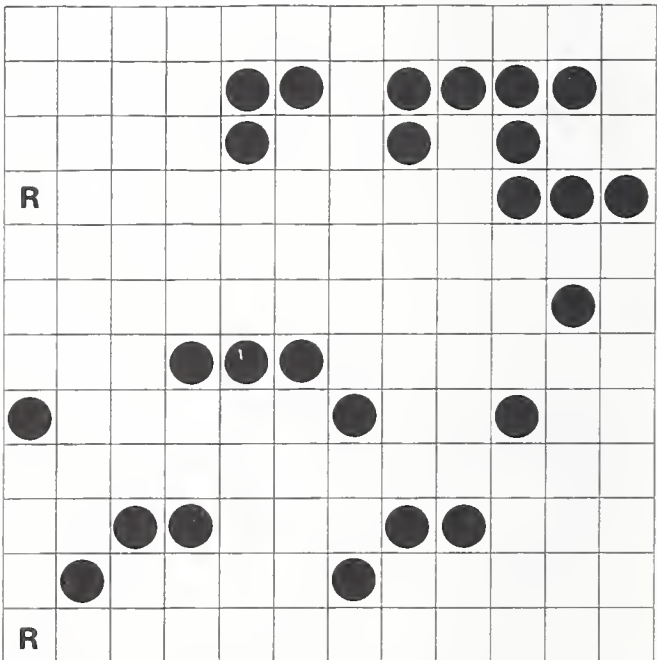


FIGURE 26. Distribution of *Paradiacheopsis solitaria* in central London.

Perichaena chrysosperma (Currey)Lister (B)

On *Acer*, *Crataegus*, *Fraxinus*, *Sambucus* and *Zelkova*.
BCE, CWH, HHH, RBG, SJW, SLS, VTG, WHE, WHW. (Figure 27.)

Perichaena vermicularis (Schwein.)Rostaf. (B)

On *Fraxinus* and *Platanus*.
BCE, RBG.
Widespread, but not common, in deep leaf litter, especially in winter, in the south-east; occasionally in bark cultures.

- Physarum compressum* Alb. & Schw. (C)

On *Platanus*.
DKC.
- Physarum crateriforme* Petch (A)

On *Ilex*.
RBG.
Mostly a western species in Britain but known from two other Surrey sites within the Society's area.
- Physarum leucophaeum* Fr. (C)

On *Platanus*.
WHG.
A common species on dead wood in the south-east, rather rare on bark of living trees.
- Physarum nutans* Pers. (C)

On *Platanus*.
BCE.
Very common everywhere on dead wood, but rarely seen in bark cultures.
- Physarum pusillum* (Berk. & M.A. Curt.)G. Lister (B)

On *Platanus*.
CHC.
Usually on grass-based litter but frequent on bark, sometimes accompanied by a sessile form which may be mistaken for *Badhamia panicea*. Widespread but not common in the south-east.
- Pocheina rosea* (Cienk.)Loeblich & Tappin (A)

On *Abies*, *Acer*, *Araucaria*, *Betula*, *Catalpa*, *Cedrus*, *Chamaecyparis*, *Fraxinus*, *Gleditsia*, *Juglans*, *Larix*, *Liquidambar*, *Nothofagus*, *Picea*, *Pinus*, *Platanus*, *Prunus*, *Pseudolarix*, *Pterocarya*, *Sophora*, *Sorbus*, *Thuja*, *Tilia* and *Ulmus*.
BCE, BCN, BCW, CPS, CWH, HHH, HHW, HLP, HMP, HNP, KTV, LTS, PHF, PNH, RBG, RPW, TGN, VPS, WBC. (Figure 28.)

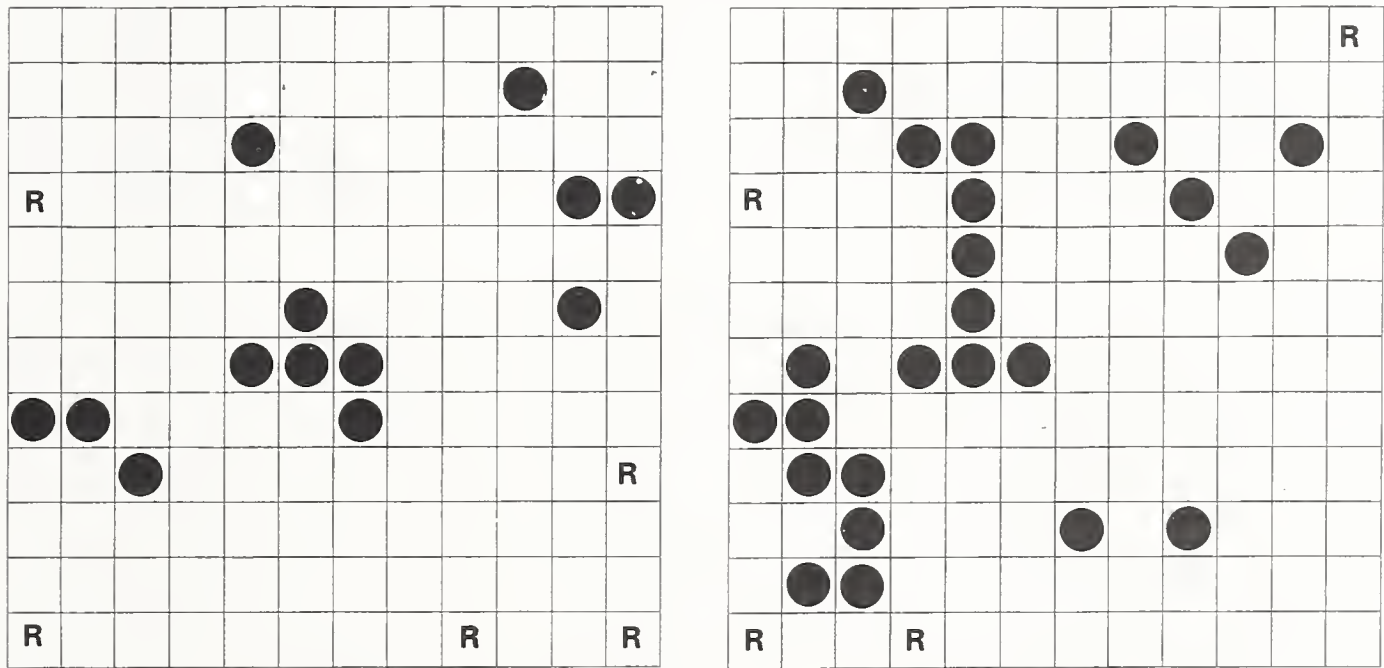


FIGURE 27. Distribution of *Perichaena chrysosperma* in central London.

FIGURE 28. Distribution of *Pocheina rosea* in central London.

- Stemonitopsis amoena* (Nann.-Bremek.)Nann.-Bremek. (B)

On *Platanus*.
GWP.
New to the London area, although previously recorded in rural Kent; a rare species, usually on bark but occasionally on fallen branches.
- Trichia munda* (Lister)Meylan (A)

On *Platanus*, *Quercus* and *Salix*.
CPC, PRC, WBC.
Widespread in the south-east of England but never common; usually on mosses on bark.

Discussion

The high diversity of bark myxomycetes found in the London area contrasts well with the low diversity in East Anglia and the generally high levels in Atlantic sites along the western coasts of Wales and Scotland (Ing 2000). The richness of the bark of London’s trees is thought to be partly due to a reduction in soot deposition, partly to a reduction in low-level sulphur dioxide emissions and partly to the an increase in guano deposition from roosting birds, which results in the eutrophication and neutralization of the bark. Little work has been done on the effects of acid deposition on bark myxomycetes but it does seem to reduce the species diversity and produce some abnormal growth in sensitive species (Wrigley de Basanta 1999).

From the results collected it is clear that certain species are more tolerant of the urban bark environment and occur widely and frequently. Table 1 shows the ‘top ten’ bark myxomycetes in terms of their percentage occurrence in the 91 tetrads studied. Table 2 shows the percentage occurrence in the 589 samples cultured. Not surprisingly the same species occupy the top four positions and eight species occur in both tables. Myxomycetes are widespread and common on the bark of trees in central London. Indeed, the chances of at least one species developing on any bark sample from the area is at least 98 per cent (585 out of 589 samples taken yielded at least one species).

TABLE 1. The most widespread bark myxomycetes in central London.

Rank	Species	percentage occurrence in tetrads
1	<i>Licea parasitica</i>	85
2	<i>Paradiacheopsis fimbriata</i>	85
3	<i>Licea kleistobolus</i>	63
4	<i>Echinostelium brooksii</i>	56
5	<i>Licea marginata</i>	45
6	<i>Arcyria pomiformis</i>	43
7	<i>Echinostelium fragile</i>	36
8=	<i>Paradiacheopsis cribrata</i>	34
8=	<i>Echinostelium colliculosum</i>	34
10	<i>Echinostelium minutum</i>	31

TABLE 2. The most frequent bark myxomycetes in central London.

Rank	Species	percentage occurrence in samples
1	<i>Paradiacheopsis fimbriata</i>	44
2	<i>Licea kleistobolus</i>	38
3	<i>Licea parasitica</i>	37
4	<i>Echinostelium brooksii</i>	24
5=	<i>Arcyria pomiformis</i>	13
5=	<i>Pocheina rosea</i>	13
5=	<i>Licea marginata</i>	13
8	<i>Paradiacheopsis solitaria</i>	12
9	<i>Paradiacheopsis cribrata</i>	11
10=	<i>Echinostelium colliculosum</i>	9
10=	<i>Echinostelium fragile</i>	9

It is clear, however, from Figure 2, that tetrads vary greatly in the number of species detected. This is, in part, linked to the number of tree species sampled at each site. It is not surprising, therefore, that the tetrad containing Buckingham Place Garden has yielded 33 species from 36 trees sampled (Ing 1999b) and the tetrad with Kew has 55 species from over 300 trees sampled. There appears to be little or no correlation between the diversity, or species richness, of a site/tetrad with the direction of the prevailing wind or local

sources of air pollution. Neither is there any significant difference between the number of species per tetrad in the suburban or rural margins of the area, which has been less intensively studied, and the urban centre. However, some species which are characteristic of semi-natural woodland seem more likely to occur on the outskirts of the city and this is borne out in this study.

That so many very rare, or even newly described, species have been found in the survey is probably due to the large number of samples taken in a limited area. Real rarities occur once or twice in several hundred samples whereas some supposed rarities are found in their true frequency if enough work is done.

It may be tempting to suggest that climatic change is being reflected in the apparent increase in some southern species, such as *Licea biforis*, but, again, this may be equally a response to more intensive sampling. In the case of *L. biforis* it is possible that milder winters are a particular cause as it has been found recently in several sites in northern Scotland. London has always been warmer than the rest of south-east England, as it both generates and retains heat. It is therefore more likely that large improvements in air quality are of greater impact than slight increases in mean temperature.

As seen in the earlier part of this study the contribution of planted and naturalized trees to the diversity of bark myxomycetes is clearly important. This is especially true of the London plane *Platanus* × *hispanica*, which has proved, rather aptly, to be by far the richest substrate for corticolous myxomycetes in the whole of the London area.

Acknowledgements

I am again grateful to David Mitchell for details of some samples from Kew, to Peter Holland for his kind hospitality and to my wife, Eleanor, for valuable assistance in note-taking during several recent trips to London. Thanks are due to the Curator of the Living Collections at the Royal Botanic Gardens, Kew, for permission to take bark samples over a large number of visits. I should like to thank the many local authorities who have been unwitting hosts on my fleeting visits to their parks, without which London would be a far duller city. Finally, and unfashionably, I should like to pay tribute to the public transport system in London, the buses, Underground, Docklands Light Railway and suburban trains, which were used to reach *all* the study sites. No city has a more comprehensive and useful system and all the visits were made without using a car — a truly 'green' study.

References

- ING, B. 1998. Corticolous myxomycetes from central London. *Lond. Nat.* 77: 83–89.
 ING, B. 1999a. *The myxomycetes of Britain and Ireland*. Richmond Publishing, Slough.
 ING, B. 1999b. Myxomycetes in Buckingham Palace Garden. In *The Natural History of Buckingham Palace Garden, London*. Part 1. *Lond. Nat.* 78 (Suppl.): 9–14.
 ING, B. 2000. *A census catalogue of the myxomycetes of Great Britain and Ireland*. Second edition. British Mycological Society, Kew.
 ING, B. (in press). A new species of *Licea* (Myxomycetes) from sycamore bark. *Mycologist*.
 LADO, C. 2001. Nomenmyx — a nomenclatural taxabase of myxomycetes. *Cuadernos de trabajo de flora micologica iberica* 16: 1–221.
 WRIGLEY DE BASANTA, D. 1999. Acid deposition in Madrid and corticolous myxomycetes. *Third international congress on the systematics and ecology of myxomycetes, Maryland*. Abstract Volume: 46.

Book review

Connecting with London's Nature. The Mayor's Biodiversity Strategy. Greater London Authority. 2002. 188 pp., A4 softback, profusely illustrated with colour photographs. £10 printed copy, or free from GLA website: www.london.gov.uk ISBN 1 85261 385 8.

The Mayor's long-awaited Biodiversity Strategy was launched (with the assistance of Bill Oddie) at City Hall on 31 July 2002. The event came at the end of an exhaustive period of consultation following publication of the draft Strategy in September 2000. Many individuals and organisations, including the LNHS, provided detailed comments and suggestions on ways of strengthening the draft and it is encouraging to find that the final document has incorporated many of these.

This is the first ever statutory Biodiversity Strategy at the regional level and is one of eight Strategies that the Mayor is required by law to produce. All of the Strategies need to be consistent with one another. The Biodiversity Strategy therefore provides a broad statutory framework for biodiversity in the capital, but most of its implementation will be via the Spatial Development Strategy (the 'London Plan'), currently at the draft consultation stage. The latter will be of crucial importance for biodiversity conservation, particularly in the way it will be reflected in Local Authority Unitary Development Plans (UDPs). There are potential areas of conflict here, particularly over the precise definition of 'brownfield land' which is being heavily targeted by central government for new housing development but which may often also possess considerable nature conservation value.

At the heart of the document lie 14 policies, and to implement these policies, 72 proposals which list the main partners asked to take each proposal forward. Thus, for example, in support of the first key policy (which commits the Mayor to 'work with partners to protect, manage and enhance London's biodiversity') there are 18 proposals, most of which will be taken forward through the planning process and are therefore led by the GLA or the London boroughs (hence the importance of strong 'green' policies in UDPs). Proposal 18 supports the promotion of effective monitoring of plants and animals in London and the establishment of a London Biological Records Centre as part of the National Biodiversity Network. The Mayor hopes to achieve this through co-operation with the London Biodiversity Partnership and other relevant bodies. This proposal will be led by English Nature, and LNHS are listed as a major partner together with the London Wildlife Trust and others. Further policies cover the setting up of a 'Blue Ribbon Network' to protect and enhance the biodiversity of the River Thames and London's other waterways; the promotion of environmental education (continuing the Mayor's popular scheme for a free visit to London Zoo for all children in London schools); the celebration and promotion of London's many species and the landscapes where they are found; the reduction of London's impact on biodiversity elsewhere (through, for example, ensuring that the procurement policies of the GLA and local authorities pay due regard to biodiversity conservation). Another policy supports the establishment of partnerships and recognises the central role of the London Biodiversity Partnership to carry forward the London Biodiversity Action Plan through which much of the Strategy will be implemented. Although some of the Mayor's proposals can be achieved within existing budgets, many others will require considerable additional funding and it is therefore good to see that, in policy 13, 'the Mayor is committed to increasing the funding for biodiversity projects in London, and wishes to ensure that major new development projects include provision for biodiversity.' However, it is difficult to see how the current shortage of revenue funding within many local authorities will be addressed (for example, to support on-going management of wildlife sites). The Mayor's last policy concerns monitoring. Here the success of the Strategy will be measured primarily against two targets. Firstly, that there is no net loss of Sites of Importance for Nature Conservation; and secondly, that the Areas of Deficiency in accessible wildlife sites will be reduced. These are ambitious targets given the ever-increasing pressure on land in London for housing and other developments.

The Mayor's Biodiversity Strategy contains bold and innovative proposals which, if carried forward successfully and adequately funded, would certainly help to reverse the damage done to London's wildlife by years of greenspace destruction and inappropriate development. The Strategy deserves to be strongly supported and there is no doubt that the LNHS, as a committed partner of the London Biodiversity Partnership, will continue to play a full part in furthering its success.

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Gulls on Blackheath

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Summary

Attention is drawn to the record of a kittiwake in 1978 and observations of the age categories of common gulls from 1978–1980 on Blackheath in response to the paper by Burton (2001) on the vertebrate fauna of this area within the London Boroughs of Greenwich and Lewisham and the Watsonian vice-county 16, West Kent.

The authoritative paper on the vertebrate fauna of Blackheath and Greenwich Park by Burton (2001) aroused memories of observing gulls at the former area which has instigated these notes.

In the 1970s I became acquainted with Blackheath when travelling along Shooters Hill Road, frequently stopping to observe, in particular, common gulls *Larus canus*, from 1978–1980. During my first visit in 1978, on 13 January, an adult kittiwake *Rissa tridactyla* was found resting on the greensward amongst black-headed gulls *Larus ridibundus* and common gulls at around 14.20 GMT, remaining there for twenty minutes until people disturbed the birds. This observation was documented in *London Bird Report* No. 43 (London Natural History Society 1980) and constitutes an addition to 141 species of birds reviewed by Burton (2001).

Whilst studying the bill colour of the winter adult common gull (Strangeman 1982) from January 1978 to December 1980, mainly in the London Area, records were also kept of the age categories of the species when the opportunity arose. On Blackheath 1,610 common gulls were aged on forty-nine visits with the highest percentage of immatures, predominantly first-winter/summer, occurring in April, as shown in Table 1, when spring migration reaches a peak in the London Area (Sage 1960). Teagle's (1997) systematic recording in 1953 showed that this gull was found in every month of the year, noting in particular the sudden changes in numbers which occurred in April. During a study of birds on the River Thames in Inner London I also found that counts could vary within a short period (Strangeman 1986), so it appears that this behaviour is not confined to grassland. Six in July–August (see Table 1) are too few to allow a meaningful interpretation of the figures.

Teagle (1997) always associated the common gull with Blackheath and it is clear from Burton (2001) that the species still frequents the area which is an important non-breeding habitat.

Acknowledgement

I thank John F. Burton for encouraging me to prepare these notes and commenting on the draft manuscript.

References

- BURTON, J. F. 2001. A history of the vertebrate fauna of Blackheath and Greenwich Park, 1850–1999. *Lond. Nat.* **80**: 43–98.
 LONDON NATURAL HISTORY SOCIETY. 1980. *Lond. Bird Rep.* **43**: 41.
 SAGE, B. L. 1960. The spring migration of the common gull through the London Area. *Lond. Bird Rep.* **23**: 69–74.
 STRANGEMAN, P. J. 1982. Bill colour of winter adult common gull. *Br. Birds.* **75**: 289–290.
 STRANGEMAN, P. J. 1986. An Inner London study of birds on the River Thames at Westminster and Waterloo. *Lond. Bird Rep.* **50**: 170–186.
 TEAGLE, W. G. 1997. Blackheath in the 1950s and 1960s. *Lond. Nat.* **76**: 83–103.

TABLE 1. Age categories of common gulls on Blackheath, 1978–1980.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1st-w	4	6	17	74	—	—	juv	0	0	9	16	5	1st-w
2nd-w	2	2	3	9	—	—	1st-s	60	100	16	7	2	2nd-w
3rd-w/ad	94	92	80	17	—	—	2nd-s	40	0	75	77	93	3rd-w/ad
Total aged	271	276	550	106			5	1	50	83	101	167	
Days visited	3	4	9	3	0	0	1	1	4	11	8	5	

The age categories are expressed as percentages.

juv. = juvenile, 1st-w = first winter, 1st-s = first summer, etc., ad = adult.

A follow-up survey of small mammals on Ham Lands, south-west London

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Abstract

This paper presents the results of a live-trapping survey of the shrews, mice and voles in a diverse wet grassland habitat on Ham Lands, Richmond upon Thames (south-west London). The first survey of three sites on Ham Lands in October 1997 found only two species: wood mice *Apodemus sylvaticus* which dominated the catch, and bank voles *Clethrionomys glareolus*. However, poor weather and a relatively short trapping period (36 hours) could have led to an underestimate of mammal diversity. The present study, from 28–30 September 2001, concentrated on just one area, the water meadow, using a total of 84 live-traps in three trap lines over a 48-hour period — about seven and half times the previous trapping effort for this area. As before, wood mice dominated the catch (30 individuals) but two new species were recorded: field voles *Microtus agrestis* (10 individuals) and one common shrew *Sorex araneus*. Colonization of the water meadow by field voles and common shrews could possibly have occurred in the four years between the two surveys. However, it seems more likely that the presence of these less trappable and less common species in the area was only apparent after a much greater trapping effort. We conclude that surveys may require intensive and repeated trapping, especially when a highly trappable species (wood mouse) dominates the catch. The new data reveal the small mammal community of Ham Lands to be more similar to that of Wimbledon Common and Richmond Park than previously shown. Furthermore the presence of field voles and a common shrew, both relatively sedentary species, is encouraging evidence that the level of habitat fragmentation in the local area has not been sufficient to have entirely excluded these species.

Introduction

Ham Lands (TQ1672) is a former landfill site that over recent decades has developed into the most diverse grassland in the Borough of Richmond (O'Reilly 2001). A survey in 1999 described the site as 'a maturing wasteland' and noted that the high diversity resulted from the presence of several stages of natural succession and the range of nutrient-poor artificial substrates (O'Reilly 2001). The grassland is developing (with little management) from what was formerly a ruderal community through grassland and tall herbaceous vegetation to scrub. The site is of metropolitan importance with a diversity of grasses and flowers (both native and exotic) some rare in the London area, and three species of orchid, bee *Ophrys apifera*, common spotted *Dactylorhiza fuchsii* and pyramidal *Anacamptis pyramidalis* (O'Reilly 2001).

The first small mammal survey of Ham Lands was conducted in 1997 (Reeve et al. 2001). Only two species were found, wood mouse *Apodemus sylvaticus* (45 individuals) and bank vole *Clethrionomys glareolus* (two individuals). However, despite using a total of sixty Longworth traps in three sites (water meadow area, Thames Young Mariners site, and an area of reed bed) the trapping period was

limited to only thirty-six hours (two nights and one day) by bad weather and thus may not have allowed a representative catch. The dominance of wood mice in the catch may also have effectively excluded other species.

The low species richness of mammals on the site was surprising because the habitat diversity of Ham Lands, both in terms of species richness and vegetation structure, would seem to provide a wide range of potential habitats. One possible explanation for the low mammal diversity in the 1997 survey is that it may be a result of the relative isolation of the Ham Lands site (Reeve et al. 2001). However, natural fluctuations in small mammal populations, differences in the trapability between species, and chance effects when there is a low trapping effort, can all mean that such 'snap-shot' trapping surveys may be unrepresentative. Therefore, the aim of this follow-up study was selectively to resurvey the water meadow area (TQ167731) on Ham Lands using a greater trapping effort.

Method

For comparability with the 1997 survey and others conducted in nearby locations (Reeve et al. 2001) fieldwork was conducted in autumn (28–30 September 2001) when populations are normally at a post-breeding peak (Alibhai and Gipps 1985, Flowerdew 1985, Gurnell 1985).

Eighty-four Longworth traps were set in three sites in the water meadow area. In each location, traps were placed in a line with approximately five metres between traps, although this was varied as necessary to ensure that traps could be appropriately located and concealed. Traps were baited with sunflower seeds, blowfly pupae (for shrews) and dry hay bedding from on-site bales (available from recent annual mowing). The trapping period was forty-eight hours, with twice-daily trap rounds. The trapping, handling and marking of animals was conducted according to the guidelines in Gurnell and Flowerdew (1990) and covered by an English Nature licence for the taking of shrews. Captured animals were sexed and weighed using a 50-gram spring balance (Pesola, Switzerland). Their age was estimated then each was individually marked by fur clipping before release at the capture point.

The study area

The dominant shrub species in the study area was hawthorn *Crataegus monogyna*, and many of the hedgerows included this as well as areas of blackthorn *Prunus spinosa*, elm *Ulmus procera*, field maple *Acer campestre* and crab apple *Malus sylvestris*. These species provided a framework for thickets of honeysuckle *Lonicera periclymenum*, black and white bryony *Tamus communis* and *Bryonia cretica*, ivy *Hedera helix* and elder *Sambucus nigra*. Such a hedgerow bordered the trapping site, sheltering an area of grassland on its western side from people using the towpath. On its eastern side this grassland was protected from disturbance by a further swathe of taller vegetation as described below.

The three trapping sites were as follows:

Site 1: 33 traps. A seasonally dry ditch that floods from November to May and runs parallel to the towpath and is therefore characterized as edge habitat. There was an adjacent hedgerow as described above, dominated by blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna*. Ground cover was provided by Michaelmas daisy *Aster novi-belgii*, purple loosestrife *Lythrum salicaria*, gypsy-wort *Lycopus europaeus* and trifid bur marigold *Bidens tripartita*. Hops *Humulus lupulus* were growing through the hedgerow and a splendid fungus, *Gymnopilus junonius*, marked one of the trap points.

Site 2: 27 traps. A raised area of relatively dry grassland bordered by stands of willowherb *Epilobium* spp. and meadow rue *Thalictrum flavum*. The area was dominated by a variety of grasses including reed canary grass *Phalaris*

arundinacea, common orache *Atriplex patula*, distant sedge *Carex distans* and various tussock-forming species (unidentified).

Site 3: 24 traps. A low-lying area of wetter grassland dominated by horseradish *Amoracia rusticana* and reed canary grass. Also present were water pepper *Polygonum hydropiper*, bistort *Polygonum bistorta*, couch grass *Elymus repens* and patches of common nettles *Urtica dioica*. This taller vegetation presented a reasonably effective barrier against disturbance from dog walkers.

The relative abundance of each mammal species was expressed as an index of catch per unit effort, i.e. the number of captures per hundred trap-‘nights’ (24-hour periods). Trapping effort was adjusted for empty traps accidentally triggered (e.g. by slugs) (Nelson and Clark 1973). It is unknown precisely how long any trap may have been closed, so for every closed trap approximately half the maximum period between setting and checking traps was deducted from the total trapping effort (Reeve et al. 2001).

Results

Forty-one individuals of three species were caught: 30 wood mice *Apodemus sylvaticus*, four of which were subsequently recaptured), 10 field voles *Microtus agrestis* and one common shrew *Sorex araneus*; see Table 1.

TABLE 1. The total number of individuals, total catch (includes recaptures) and TNI* for each species at the three trapping sites in the water meadow area of Ham Lands.

Habitat	Site	Species	Trap-nights	No. of individuals	Total catch	TNI (individuals)	TNI (total catch)
Seasonal ditch	Site 1	<i>A. sylvaticus</i>	65	17	21	26.2	32.3
		<i>M. agrestis</i>	65	0	0	—	—
		<i>S. araneus</i>	65	1	1	1.5	1.5
Dry grassland	Site 2	<i>A. sylvaticus</i>	53	7	7	13.2	13.2
		<i>M. agrestis</i>	53	3	3	5.7	5.7
Wet grassland	Site 3	<i>A. sylvaticus</i>	47	6	6	12.8	12.8
		<i>M. agrestis</i>	47	7	7	14.9	14.9
All sites total			165	41	45	24.8	27.3

*TNI (Trap-night index) = number per 100 ‘trap-nights’ (24-hour periods)

The most abundant species was the wood mouse, with a TNI (individuals) of 20.6 compared with 6.1 for field voles and only 0.6 for common shrews. Wood mice dominated the catch during both the first and second 24-hour period of trapping, accounting for 76 per cent of captures overall. However, the dominance was most marked in the first period (83 per cent of captures) falling to 70 per cent of captures in the second period. Field voles increased their share of the catch from 17 to 25 per cent (22.2 per cent of captures overall). The single common shrew capture was during the second period.

The overall dominance of woodmice is reflected by the Berger-Parker index value of 0.73. Species richness was expressed using Log Series Alpha ($\alpha = 0.75$), species diversity was expressed using a reciprocal Simpson’s index ($1/D = 1.72$). Beta-diversity between the sites was expressed using Whittaker’s index, ($\beta_w=0.78$). All values were calculated using the number of individuals to represent abundance. The choice of indices follows Reeve et al. (2001).

Discussion

As in the 1997 trapping survey, wood mice were by far the commonest mammal caught although their dominance (Berger-Parker index) was reduced from 0.96 to 0.73 and significant catches of field vole and a common shrew have added two new species records to the area. At $\alpha = 0.75$, species richness for the water meadow was a considerable improvement on the 0.50 recorded in 1997 and the diversity ($1/D = 1.72$) was greater than for the whole Ham Lands area ($1/D = 1.08$) in the previous survey. The absence of bank voles on this occasion was probably because the hedgerows, shrubby areas and wooded margins with which they are associated were not sampled in this case.

Although the three traps lines in the present study were essentially sampling the same area, it is notable that Whittaker's index ($\beta_w = 0.780$) revealed a greater level of beta-diversity (heterogeneity in species composition between the three sampling sites) than was found for the whole Ham Lands area in 1997 ($\beta_w = 0.20$). This indicates that the trap lines did exploit the different features within the meadow area and this is reflected in the catch.

The fact that in the first twenty-four hours of trapping only wood mice were caught, corroborates reports that both bank voles and field voles seem to enter traps less readily than wood mice (Gurnell and Gipps 1989, Redpath et al. 1994). This may help to explain the lower species richness of the 1997 survey (Reeve et al. 2001), but also the trapping effort of the present study on the water meadow was about seven and a half times greater. Flooding the meadow area with traps seems to have been effective in revealing the presence of less common and/or less readily trapped species.

Wood mice are highly mobile and adaptable, exploiting a wide range of habitat types (Flowerdew 1991, Macdonald and Barrett 1993) and they seem to be typical species of urban open spaces. In this study most were caught in traps laid in the cover of dense vegetation. The presence of field voles (grassland specialists) and a common shrew, both relatively sedentary species, is encouraging evidence that despite the level of habitat fragmentation in the local area (Reeve et al. 2001) it has not been sufficient to have entirely excluded these species.

If the results of the present study are substituted for the 1997 survey results, it alters the overall comparison of the small mammal communities between the four local areas surveyed in Reeve et al. (2001). The Morisita-Horn index of similarity finds Wimbledon Common and Ham Lands to now be the most similar ($C_{MH} = 0.984$), then Wimbledon Common and Richmond Park ($C_{MH} = 0.978$), then Ham Lands with Richmond Park ($C_{MH} = 0.927$). All these sites have a high degree of similarity, but Bushy Park still shows low similarity with all the other sites with low C_{MH} values ranging from 0.160 to 0.403.

Colonization of the water meadow by field voles and common shrews could possibly have occurred in the four years between the two surveys. However, it seems more likely that the presence of these less trappable and less common species on the site was only made apparent after a much greater trapping effort. Tew et al. (1994) noted that there must be enough traps placed in an area to give all mammal species a chance to be caught. This study reinforces that conclusion and emphasizes the need for repeated resampling of areas.

Acknowledgements

The authors would like to thank the many people who helped with the study. These include Elizabeth Cheeseman, John Hatto, Emma Wilson, Tyrrell Marris, Irene Kettle and Ray Garrett.

References

- ALIBHAI, S. K. and GIPPS, J.H.W. 1985. The population dynamics of bank voles. *In* Flowerdew, J. R., Gurnell, J. and Gipps, J. H. W. (eds). The ecology of woodland rodents. *Symp. zool. Soc. Lond.* 55: 277–313.

- FLOWERDEW, J. R. 1985. The population dynamics of wood mice and yellow-necked mice. *In* Flowerdew, J. R., Gurnell, J. and Gipps, J. H. W. (eds). *The ecology of woodland rodents. Symp. zool. Soc. Lond.* **55**: 315–338.
- FLOWERDEW, J. R. 1991. Wood mouse. *In* Corbet, G.B. and Harris, S. (eds). *The handbook of British mammals*. Ed.3. Blackwell, Oxford: 221–228.
- GURNELL, J. 1985. Woodland rodent communities. *In* Flowerdew, J. R., Gurnell, J., Gipps, J. H. W. (eds). *The ecology of woodland rodents. Symp. zool. Soc. Lond.* **55**: 377–411.
- GURNELL, J. and FLOWERDEW, J. R. 1990. *Live trapping small mammals: a practical guide*. Ed.2. The Mammal Society, London.
- GURNELL, J. and GIPPS, J. H. W. 1989. Inter-trap movement and estimating rodent densities. *J. Zool., Lond.* **217**: 241–254.
- MACDONALD, D. and BARRETT, P. 1993. *Mammals of Britain and Europe*. Harper Collins, London.
- NELSON, L. and CLARK, F. W. 1973. Correction for sprung traps in catch/effort calculations of trapping results. *J. Mammal.* **54**: 295–298.
- O'REILLY, J. 2001. *Audit of wildlife habitat in Richmond upon Thames 1999*. Greater London Authority.
- REDPATH, C. J., THIRGOOD, S. J. and REDPATH, S. M. 1994. Evaluation of methods to estimate field vole *Microtus agrestis* abundance in upland habitats. *J. Zool., Lond.* **237**: 49–55.
- REEVE, N. J., PALMER, I., JONES, K.E., BLANC, J. and FURE, A. 2001. Trapping surveys of small mammals on Wimbledon Common, Bushy Park and Ham Lands, south-west London. *Lond. Nat.* **80**: 109–125.
- TEW, T.E., TODD, I.A. and MACDONALD, D. W. 1994. The effects of trap spacing on population estimation of small mammals. *J. Zool., Lond.* **233**: 340–344.

Book reviews

Amphibians and reptiles of Surrey. Julia Wycherley and Richard Anstis. Surrey Wildlife Trust, Woking. 2001. 112 pp., £13.00 hardback. ISBN 0 9526065 6 9.

This publication is the seventh in a series of county atlases produced by the Surrey Wildlife Trust. Previous atlases have been well received by the relevant specialist groups giving this latest work a high standard to live up to. That it exceeds this standard is due entirely to the experience of the authors and their long-standing association with the county, together with the strength of the Surrey Amphibian and Reptile Group.

The book is, however, much more than just a standard county atlas. In addition to the usual species accounts that comprise around half of the text, there are substantial introductory sections about the county, its geology, dinosaurs, pond history, a study about pond loss, a summary of national herpetofauna, biology of the taxa, surveying and recording, conservation and garden habitats.

Particular mention must also be made of the excellent thirty-two colour plates, each with two photographs, illustrating the twelve native British species, all of which have been recorded since 1980 in this important county for amphibian and reptile conservation.

In summary, this book represents a mammoth recording effort to achieve the level of coverage shown on the tetrad distribution maps for each species and the work stands as a testament to achievements of the thriving Surrey Amphibian and Reptile Group without whose data the atlas would never have reached publication. This book is a highly recommended read for anyone with a passing interest in herpetofauna and it deserves a place on the shelf of any naturalist with a connection to the county of Surrey.

CLIVE HERBERT

Mammals, amphibians and reptiles of Hertfordshire. Michael Clark. Hertfordshire Natural History Society in association with Training Publications Limited, Watford. 2001. 311 pp., paperback £20.00. ISBN 1 84019 012 4.

At first glance this book appears to be one more in the stable of an ever-growing number of county atlases but it is, in fact, unique in several aspects. Firstly, as the title suggests, it combines herpetofauna with mammals, and this has been achieved with success although the author is perhaps best known as an extremely experienced and knowledgeable mammalogist with a long association with the county and its natural history society.

Secondly, it is more than just a standard county atlas with the usual series of tetrad distribution maps. There are, for instance, numerous photographs throughout the work, often up to six per page, which enliven the species accounts that form the majority of the book. The species text covers the distribution and status data that you would expect in any such work but also includes some unusual records and numerous anecdotes to make this an exceptionally entertaining read.

Unusually, the author has taken the opportunity to profile various individuals connected with mammals and herpetofauna over the past decades and this successfully adds to the overall interest of the book. It does not detract, however, from the primary purpose of documenting these animals in the county since records began and to provide an extremely comprehensive reference book.

There is also a useful introductory section about Hertfordshire and the book ends with nearly a hundred pages covering topics as diverse, yet relevant, as farming and game rearing, extinct species, conservation and management, recording and no less than nine appendices, including a section on LNHS mammal records from that part of the county within our recording area. As well as providing a detailed historical record, including the relevant sections of the Victoria County History, it is also up to date with reference to the county Biodiversity Action Plan and forthcoming *Red Data Book*, together with an extensive and well-researched bibliography.

In summary, the book is an essential read for anyone interested in the species groups covered or the county and deserves to be widely read. An extraordinary amount of effort has gone into producing this work by both the publisher (their first and hopefully not last foray into natural history books) and the author — a true 'labour of love' that will stand the test of time and become a key reference for many years into the future.

CLIVE HERBERT

Fish diversity in the River Thames

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Abstract

One hundred and twenty species of fish have been identified from the River Thames according to surveys of the river by the Environment Agency (tidal Thames survey 1992–2001 and lower freshwater Thames survey 1995–2001). This diversity includes species of conservation importance, notably sea lamprey, lampern, twaite shad and smelt in the tidal Thames. Non-indigenous fish such as grass carp are now found in the lower river. Sea lamprey appears to have made an annual spawning attempt at Barnes in the upper estuary since 1999. This is the first reported spawning of sea lamprey in the Thames catchment this century. Marine and estuarine species of fish displayed marked seasonal migrations and patterns of distribution. Information acquired in the surveys is being used to inform fisheries management policies.

Introduction

The decline of fish populations in the River Thames in the late nineteenth century and their return as a consequence of improved control of organic and thermal pollution has been well documented (Wheeler 1958, 1969, Marlborough 1972). The dissolved oxygen content of the water has increased and is maintained by use of the ‘Thames Bubbler’ system during deoxygenating water quality incidents. The ‘Thames Bubbler’ is operated by the Environment Agency and Thames Water UL and can inject up to thirty tonnes of oxygen per day into selected regions of the river (R. Oatley pers.comm.).

Regular monitoring of the Thames in the last two decades by the former Thames Water Authority (Andrews and Rickard 1980, Pilcher 1989), former National Rivers Authority (Thomas 1989, 1995) and Environment Agency (Colclough et al. 1999), in addition to work by university research teams (e.g. Araujo et al. 1999), has shown that the river now supports a diverse community of resident and migratory fish species. This paper presents a summary of fish records collected from 1992 to 2001 and describes trends in patterns of fish distribution and seasonal migrations.

Data sources

Over the last decade, fisheries officers and biologists from the South East Area of the Environment Agency, Thames Region have collaborated with other organizations to conduct an extensive survey programme of the River Thames. The marine, brackish and freshwater sections of the tidal Thames (Figure 1) have been surveyed by the Tideway Fisheries team of the Agency from 1992 to date (Colclough et al. 1999). The power station monitoring work reported by Thomas (1995) ceased in 1994. The Environment Agency has collaborated with CEFAS in an annual autumn trawling programme since 1997 (Colclough pers. comm.).

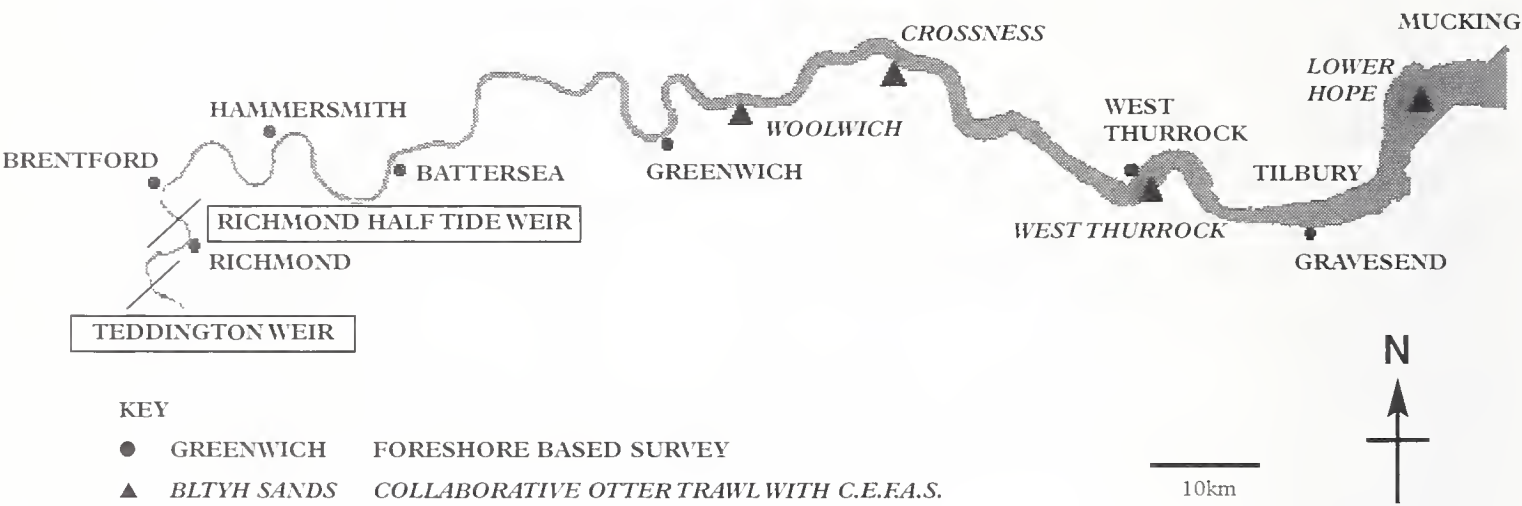


FIGURE 1. Tidal Thames survey sites sampled during the period 1994–2001. Teddington to Battersea is considered as a freshwater zone, Battersea to Mucking as a euryhaline zone and Mucking onward is fully marine. These are artificial boundaries in a dynamic continuum.

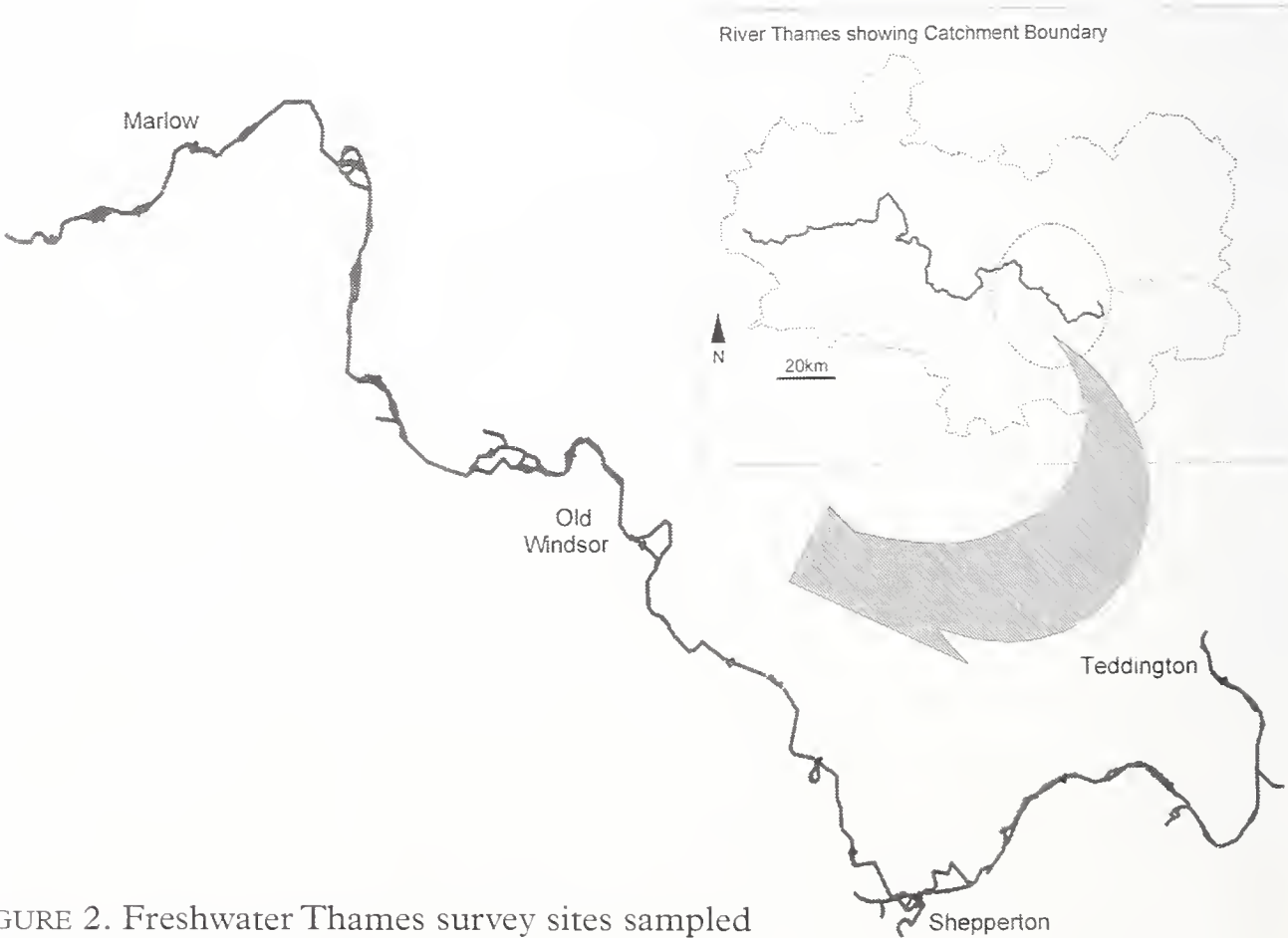


FIGURE 2. Freshwater Thames survey sites sampled during the period 1995–2001.

The lower freshwater Thames (Figure 2) has been surveyed by fisheries staff of the Environment Agency, Thames Region and its predecessors since 1995. The regular monitoring of the freshwater Thames and its tributaries are documented in a series of Environment Agency survey reports (Butterworth and Sheridan 1995, Sheridan 1999), angler surveys (Clough et al. 1999, Went 1999) and juvenile fish surveys commissioned by the Agency (KES 1998, 1999, 2000).

Sampling methods

Tidal Thames sampling

Eleven shingle foreshore sites between Teddington and Greenhithe were surveyed once a quarter for five quarters over the period May 1992 to September 1993 to establish the seasonality of fish movements in the estuary. This information permitted a rationalization of the survey programme. Since 1994 six sites between Richmond and West Thurrock have been surveyed twice a year in May/June and September/October at slack water low tide. Sites were fished using a standard combination of three techniques. Shore seine netting from a boat sampled fry and small fish species with a 5-mm knotless mesh net (35 × 2 m) and larger more active species with a 10-mm knotless mesh net (50 × 2.5 m). Boat beam trawling with a 2-m beam trawl was used to capture demersal species. One-minute timed kick sampling of the river bed with a standard biological hand net (1-mm mesh) sampled small fry and larvae. Twin otter trawls with a 5-mm knotless cod end were deployed at twelve stations from Woolwich to Southend during the annual autumn trawling programme in collaboration with CEFAS, an agency of the Department for Environment, Food and Rural Affairs (DEFRA).

Lower freshwater Thames sampling

A variety of sampling techniques was employed to overcome difficulties associated with the scale of the river environment. Electric fishing provided information on fish species present and was carried out using a specially designed 'boom boat' with large anodes fixed to booms which were lowered into the water. Specialized acoustic (hydroacoustic, sonar) methods enabled quantitative estimates of abundance and information on size distribution. Juvenile fish were sampled using a fine-meshed seine net. Other sampling methods employed include angler catch assessment and trapping.

Results and discussion

Tidal Thames

Diversity and conservation species

Table 1 lists 119 fish species caught in the tidal River Thames between Fulham and Tilbury since 1964. Over sixty per cent of the marine, euryhaline and freshwater species reported to date have been recorded in the current survey programme. There have been developments associated with three rare or notable species. Recent reports of sea lampreys and lamperns (river lampreys) suggest that these species may be re-establishing in the Thames catchment. Both species are listed in the Habitats Directive (Annex IIa), the Bern Convention (Appendix III) and both are UK Biodiversity Action Plan species. They are considered to be very sensitive to water quality due to their spawning requirements for fast flowing water and clean gravels. Sea lampreys and lamperns are ectoparasitic on marine fish as adults and migrate into fresh water to spawn. Most adults die after spawning and may remain on the shore or in the water for several weeks when they are at their most visible. Freshwater juvenile stages (ammocoetes) live in the mud and spend approximately 4–5 years filter-feeding on micro-organisms before migrating to sea as a adult (Miller and Loates 1997). Lamperns are smaller than sea lampreys and remain closer to their native catchments whilst at sea.

Sea lampreys do not appear to have been common in the tidal Thames (Wheeler 1958) and there are no published reports in the past century. Six sea lampreys were found dead on the shore in the Barnes area, apparently after spawning, in July 2000. Subsequent reports, in response to requests for further information, revealed that another three sea lampreys had been observed between Hammersmith and Kew during the same period and that a similar phenomenon had occurred at Barnes in 1999. Marine fishermen reported catches of sea lamprey in the lower estuary during the spring. There were at least eleven other sightings of sea lamprey in the same area in 2001. This information suggests that a new spawning migration has begun in the River Thames, but the precise location of the spawning site is unknown. Dead sea lampreys could be transported many kilometres with tidal action. The Environment Agency plans to investigate the location of the spawning site and ammocoete nursery grounds.

By comparison the lampern fishery was previously substantial in the Thames, but there are only few reports of the species in the past century (Wheeler 1958, 1969). In November 2001, five lamperns were reported from the screens at Tilbury Power Station and later in the month single reports were received from Wandsworth and Teddington. Third-hand reports indicate that lamperns may have been present in the upper estuary and associated dock basins for several years, but there are no data at present to predict which catchments upstream of the estuary will support any future spawning.

Twaite shad numbers have been building up in the lower estuary over the past decade, with a steady increase in the size ranges apparent. This species breeds mainly in estuarine water and there is evidence for the location of a nursery ground in the inner estuary above Southend. Twaite shad were known to be abundant in the last century (Wheeler 1958), so their return may indicate an improvement in water quality. Although twaite shad are not valued as commercial species, they are common as incidental by-catch in inshore fisheries off the southern coasts. The conservation importance of this species, therefore, has been emphasized to commercial marine fishermen.

Marine species

Dover sole fry were observed to penetrate up to Greenwich and adult Dover sole were generally found as far upstream as Gravesend, although they have been recorded up to Thamesmead in some summers. The Thames Estuary has become one of the largest nursery grounds for Dover sole in England and Wales (Thomas 1995). Thin-lipped grey mullet were common in the Thames up to Woolwich in summer. Adult fish penetrated up to Chelsea and there is thought to be a permanent population in this area of the river, attracted by the warm effluent from Lots Road Power Station. Fry appeared in August and September and were found as far upstream as Chiswick. Thick-lipped grey mullet were found to be common downstream of Woolwich in summer.

Euryhaline species

The principle euryhaline species recorded were bass, eel, flounder, common goby and smelt. These species displayed marked seasonal migrations. They entered the upper estuary in spring and summer and then moved down to the lower estuary in the winter, although some smelt may permanently live in some of the remaining dock basins.

Surveys indicate that the Thames Estuary has become one of the largest new sea bass nurseries in the southern North Sea in the past decade (G. Pickett pers.comm.). Multiple waves of bass fry appeared in the tidal Thames from June to August, probably representing different spawnings separated in time and space in the English Channel (Sabriye et al. 1988). Bass fry were observed to penetrate to the edge of the saline wedge at Richmond by the end of each summer and second-year fish occasionally penetrated as far as Chelsea.

The flounder is an important and abundant species in the estuary and breeds in the lower reaches. Flounder is the only flat fish generally found in the river above Woolwich. The survey showed that post-larvae first ascended in early May and were observed in large numbers at Putney, utilizing selective tidal stream transport to migrate. They selectively moved on the flooding tides in the extreme margins of the channel and remained in the upper estuary until late autumn. Autumn rains provided the stimulus to move back to the lower reaches below Dartford. Two-year and older flounder are recorded throughout the tideway and are commonly found in most of the tidal creeks entering the estuary below the Pool of London (Tyner 1993).

European eel elvers (65 mm) initially appeared in the estuary in early April, although elver runs appeared to be very modest, possibly reflecting a decline in eel recruitment throughout Europe (Knights et al. 1996). Eels exceeding 30 cm can be found throughout the estuary.

Common gobies appeared in June at 9 mm and penetrated to Teddington, whereas sand gobies were rarely found above Battersea. Common gobies were abundant as far upstream as Richmond and together with flounder constituted the most abundant benthic species throughout the upper estuary by late summer.

Smelt is considered to be of vulnerable status due to its sensitivity to anthropogenic environmental changes (Winfield et al. 1994). The establishment of a spawning population of smelt in the Thames Estuary by the late 1970s (Wheeler 1979) can therefore be considered to indicate an improvement in water quality. Smelt are now abundant in the Thames. Prespawning shoals congregated below Gravesend during the winter and then ascended to spawn near Wandsworth in March/April. Adults returned to the lower reaches soon after spawning, whilst young fry rapidly spread through the estuary and remained until the late autumn. In other British estuaries smelt is absent or rare (reviewed in Araujo et al. 1999).

Atlantic salmon returned to the Thames in 1974 for the first time in 150 years (Solomon 1975). Consequently, Thames Water Authority instigated a Salmon Rehabilitation Programme in 1979 with the long-term objective of restoring a self-sustaining population. The programme includes fish-rearing and stocking, fish pass construction and monitoring schemes and has achieved a regular salmon run since 1982 with an estimated return of over 500 fish in 1993 (Darryl Clifton-Dey pers.comm.). Sea trout have become increasingly common throughout the estuary in the past decade.

Freshwater fish

Freshwater fish were restricted to the upper estuary above Battersea in the summer, but could extend downstream to Greenwich and beyond in the winter. The principal freshwater species sampled were dace, roach, perch and bream. Salinity-tolerant dace were the most abundant freshwater species in the tidal Thames. Dace close to spawning were captured at Battersea in 1994. Post-larvae appeared in May and were washed down through the Pool of London, migrating upstream to the river above Battersea by late summer. Dace fry also use selective tidal stream transport to migrate upstream.

Roach is sub-dominant to dace in the estuary and substantial evidence of recruitment has been observed in Chelsea Creek. Roach found as far downstream as Thamesmead in the winter may be displaced populations from the rivers Lea and Roding. Perch and bream have shown evidence of recruitment at Richmond and Brentford. However, suitable spawning habitats for these species will probably only exist upstream of Richmond. Bream have been found down to Greenwich and Thamesmead in winter and a localized population of large bream and carp is associated with the warm water outfall at Lots Road Power Station.

Maintenance of most freshwater fish populations is presumed to occur by displacement from the freshwater catchments due to a shortage of spawning habitats which are probably limited to the river upstream of Richmond. For example, carp fry were collected at Hammersmith in 1992 probably originating from adjoining streams and rivers. Stone loach, bullhead, nine-spined stickleback and minnow are rare fish in the Tidal Thames.

Lower freshwater Thames

Table 2 gives the current fish species list for the lower freshwater Thames based on surveys and information collated between 1995 and 2001. The most common species in the lower river in terms of abundance are chub, roach, perch, bleak and gudgeon. Other common fish are dace, bream, pike and eel. Minnows are fairly common in the Thames, whilst bullhead and stone loach are generally found in smaller numbers. Large common carp have become more prevalent in recent years, probably due to stocking of ponds and lakes for angling.

A run of salmon has been recorded at Molesey and Sunbury fish traps every year since 1994 and averages 150 fish. In addition, flounder are encountered in the freshwater river, upstream of Teddington as far as Molesey weir.

A recent non-indigenous addition to the species list in the River Thames is grass carp, probably originating from an angling lake. These herbivorous fish were imported from Asia from the 1970s to control aquatic weed. Similar escapes from lakes in the Thames area include a wels which was recently found in the River Darent, a tributary of the River Thames, and there have been unsubstantiated reports from the Thames Ditton area of the Thames.

The diversity of species found in the main river is largely dictated by habitat availability, particularly for species with more specialized spawning requirements. Fish habitats have been degraded in the River Thames through man-made modification for navigation, flood defence, milling and bankside development. The lower reaches of the Thames are the most heavily impacted by physical modification and abstraction. For these reasons, generalists such as roach and perch dominate. Accessibility to both lotic and lentic habitats is an issue on the river because numerous weir structures have limited the migratory requirements of most indigenous species of freshwater fish. Fish passes have now been constructed in the weirs, primarily for salmon, although some are capable of providing passage for other species. The Environment Agency is currently investigating the creation of natural bypass channels around the weirs to assist migration and diversify habitat availability for all species. One such channel has been constructed at Penton Hook and has enabled active upstream migration of ten fish species. A further sixteen fish species, including large numbers of stone loach and bullhead, utilize habitats within the channel for nursery and spawning activities.

The lower freshwater Thames was also previously affected by organic and thermal pollution. However, water quality has now improved due to control of discharges and regulation of management practices such as dredging. The increased clarity of the freshwater river has resulted in expansion of submerged macrophyte communities which, in turn, have favoured the abundance of predators such as perch and pike.

The inherent diversity of fish in the River Thames could be considered as unusual. The river was historically composed of a variety of habitats in terms of size, depth and flow. Large river channels, pools, braided stream channels, oxbows and sloughs, and habitats of the floodplain would have been common. Although the great habitat variety of the Thames has been decreased in modern times, pockets of diverse 'artificial' habitats still remain, such as marinas and connected gravel pits which mimic floodplain backwaters and improve lateral connectivity. Dock basins create backwater refuges for fish. Mill and weir

streams provide habitats for rheophilic species and spawning areas for lithophilic species. Thus the river not only operates on the longitudinal dimension of a riparian corridor, but as a multi-dimensional series of habitats, supplemented by accessible tributaries.

Conclusions

The tidal and freshwater elements of the Thames support an abundance of fish life. The intensive series of fish survey programmes is an approach unique in the UK and the estuary programme may become a model for use in estuaries elsewhere. Information acquired in the surveys is used to inform fisheries management policy, facilitate habitat enhancement schemes and regulate riparian management practices such as dredging. Such measures should help preserve, and in some cases, restore the diversity of fish species in the River Thames. In addition, the data are used to encourage more sustainable development solutions in planning issues such as encroachments, barrages, port development and power stations, water resource management regimes and in water quality improvement initiatives.

References

- ANDREWS, M. J. and RICKARD, D. G. 1980. Rehabilitation of the inner Thames Estuary. *Mar. Poll. Bull.* **11**: 327–332.
- ARAUJO, F. G., BAILEY, R. G. and WILLIAMS, W. P. 1999. Spatial and temporal variations in fish populations in the upper Thames estuary. *J. Fish Biol.* **55**: 836–853.
- BUTTERWORTH, A. J. and SHERIDAN, S. P. 1995. *Fish population survey of the River Thames, Hurley to Teddington, 1995 — Summary Report*. Environment Agency Internal Report.
- CLOUGH, S. C., CARRON, J., BLAY, S. and TURNPENNY, A. W. H. 1999. *Angler Survey, 1998/99 — Lower Freshwater Thames*. Fawley Aquatic Research Consultancy Report.
- COLCLOUGH, S., DUTTON, C., COUSINS, T. and MARTIN, A. 1999. *A fish population survey of the tidal Thames 1994–1996*. Environment Agency Internal Report.
- KES. 1998. *Lower River Thames Juvenile Fish Survey 1997*. Kings Environmental Services.
- KES. 1999. *Lower River Thames Juvenile Fish Survey 1998*. Kings Environmental Services.
- KES. 2000. *Lower River Thames Juvenile Fish Survey 1999*. Kings Environmental Services.
- KNIGHTS, B., WHITE, E. and NAISMITH, I. A. 1996. Chapter 34. Stock assessment of European eel, *Anguilla anguilla* L. In Cowx, I. G. (ed.), *Stock Assessment in Inland Fisheries*: 431–447. Fishing News Books, Oxford.
- MARLBOROUGH, D. 1972. London fishes to 1971. *Lond. Nat.* **50**: 63–78.
- MILLER, P. J. and LOATES, M. J. 1997. *Fish of Britain and Europe*. Collins pocket guide. HarperCollins, London.
- PILCHER, M. 1989. *Tidal Thames Fish Survey*. National Rivers Authority Internal Report.
- SABRIYE, A. S., REAY, P. and COOMBS, S. H. 1988. Sea bass larvae in coastal and estuarine plankton. *J. Fish Biol.* **33** (Suppl. A): 213–233.
- SHERIDAN, S. P. 1999. *Lower Freshwater Thames fishery investigation 98/99 — summary report*. Environment Agency Internal Report.
- SOLOMON, D. J. 1975. The decline and reappearance of migratory fish in the tidal Thames, with particular reference to the salmon, *Salmo salar*. *Lond. Nat.* **54**: 35–37.
- THOMAS, M. 1989. *Estuarine Fish Survey*. National Rivers Authority Internal Report.
- THOMAS, M. 1995. *Temporal changes in the movements and abundance of Thames Estuary fish populations*. National Rivers Authority Internal Report.
- TYNER, 1993. *A fish population survey in Barking Creek*. National Rivers Authority Internal Report.
- WENT, A. 1999. *Angler Survey, Summer 1999 — Lower Freshwater Thames*. Environment Agency Internal Report.
- WHEELER, A. C. 1958. The fishes of the London Area. *Lond. Nat.* **37**: 80–101.
- WHEELER, A. 1969. Fish-life and pollution in the Lower Thames: a review and preliminary report. *Biol. Conserv.* **2**: 25–30.

WHEELER, A. 1979. *The tidal Thames*. Routledge & Kegan Paul, London.

WHEELER, A. 1992. *A list of the common and scientific names of fishes of the British Isles*. The Fisheries Society of the British Isles/Academic Press, London.

WINFIELD, I. J., FLETCHER, J. M. and CRAGG-HINE, D. 1994. *Status of rare fish, a literature review of freshwater fish in the UK*. National Rivers Authority R & D Report, 18, HMSO, 58 pp.

TABLE 1. Fish species caught in the tidal River Thames between Teddington and Tilbury area since 1964. The list is not necessarily indicative of the species that are currently present, but recent records are indicated. Scientific nomenclature, common names and arrangement of orders are according to Wheeler (1992).

Key: euryhaline (E); freshwater (F); marine (M); evidence of recruitment within river (R); recorded by Araujo et al. (1999) (A); recorded by Environment Agency 1992–2001 (EA).

Species	Common name	Life cycle	Record
ORDER PETROMYZONTIFORMES			
<i>Lampetra fluviatilis</i>	lampern (river lamprey)	E	EA
<i>Petromyzon marinus</i>	sea lamprey	M, R	EA
ORDER LAMNIFORMES			
<i>Mustelus mustelus</i>	smooth hound	M	EA
ORDER RAJIFORMES			
<i>Dasyatis pastinaca</i>	stingray	M	
<i>Raja clavata</i>	thornback ray (roker)	M	EA
ORDER ANGUILLIFORMES			
<i>Anguilla anguilla</i>	eel	E	EA
<i>Conger conger</i>	conger eel	M	
ORDER CLUPEIFORMES			
<i>Alosa alosa</i>	allis shad	E	
<i>Alosa fallax</i>	twaite shad	E	EA
<i>Clupea harengus</i>	herring	M	EA
<i>Engraulis encrasicolus</i>	anchovy	M	
<i>Sardina pilchardus</i>	pilchard (sardine)	M	
<i>Sprattus sprattus</i>	sprat	M	EA
ORDER CYPRINIFORMES			
<i>Abramis brama</i>	bream	F, R	EA
<i>Alburnus alburnus</i>	bleak	F	EA
<i>Barbatula barbatula</i>	stone loach	F	EA
<i>Barbus barbus</i>	barbel	F	EA
<i>Carassius auratus</i>	goldfish	F	EA
<i>Carassius carassius</i>	crucian carp	F	EA
<i>Cyprinus carpio</i>	carp	F	EA
<i>Gobio gobio</i>	gudgeon	F	EA
<i>Leuciscus cephalus</i>	chub	F	EA
<i>Leuciscus leuciscus</i>	dace	F, R	EA
<i>Phoxinus phoxinus</i>	minnow	F	EA
<i>Rutilus rutilus</i>	roach	F, R	EA
<i>Scardinius erythrophthalmus</i>	rudd	F	EA
<i>Tinca tinca</i>	tench	F	EA
Hybrid bream × roach		F	EA
ORDER SILURIFORMES			
<i>Ictalurus punctatus</i>	channel catfish	M	EA
<i>Silurus glanis</i>	wels (catfish)	F	EA

Species	Common name	Life cycle	Record
ORDER SALMONIFORMES			
<i>Esox lucius</i>	pike	F	EA
<i>Oncorhynchus mykiss</i>	rainbow trout	E	
<i>Osmerus eperlanus</i>	smelt	E, R	EA
<i>Salmo salar</i>	salmon	E	EA
<i>Salmo trutta</i>	brown trout (sea trout)	E	EA
<i>Thymallus thymallus</i>	grayling	F	
ORDER GADIFORMES			
<i>Ciliata mustela</i>	five-bearded rockling	M	EA
<i>Ciliata septentrionalis</i>	northern rockling	M	
<i>Enchelyopus cimbrius</i>	four-bearded rockling	M	EA
<i>Gadus morhua</i>	cod	M	EA
<i>Gaidropsarus mediterraneus</i>	shore rockling	M	
<i>Gaidropsarus vulgaris</i>	three-bearded rockling	M	EA
<i>Melanogrammus aeglefinus</i>	haddock	M	
<i>Merluccius merluccius</i>	hake	M	
<i>Merlangius merlangus</i>	whiting	M	EA
<i>Micromesistius poutassou</i>	blue whiting	M	
<i>Molva molva</i>	ling	M	EA
<i>Pollachius pollachius</i>	pollack (lythe)	M	
<i>Pollachius virens</i>	saithe (coalfish)	M	EA
<i>Raniceps raninus</i>	tadpole-fish	M	EA
<i>Trisopterus luscus</i>	bib (pouting)	M	EA
<i>Trisopterus minutus</i>	poor-cod	M	EA
ORDER LOPHIIFORMES			
<i>Lophius piscatorius</i>	angler (monk)	M	
ORDER CYPRINODONTIFORMES			
<i>Belone belone</i>	garfish	M	
<i>Scomberesox saurus</i>	skipper (saury)	M	
ORDER ATHERINIFORMES			
<i>Atherina presbyter</i>	sand-smelt	M, R	EA
ORDER ZEIFORMES			
<i>Zeus faber</i>	dory (John Dory)	M	EA
ORDER GASTEROSTEIFORMES			
<i>Gasterosteus aculeatus</i>	three-spined stickleback	E	EA
<i>Pungitius pungitius</i>	nine-spined stickleback (ten-spined stickleback)	E	EA
<i>Spinachia spinachia</i>	fifteen-spined stickleback (sea stickleback)	M	
ORDER SYNGNATHIFORMES			
<i>Entelurus aequoreus</i>	snake pipefish	M	
<i>Hippocampus hippocampus</i>	short-snouted seahorse	M	
<i>Hippocampus ramulosus</i>	seahorse	M	
<i>Nerophis lumbriciformis</i>	worm pipefish	M	
<i>Nerophis ophidion</i>	straight-nosed pipefish	M	
<i>Syngnathus acus</i>	greater pipefish	M	EA
<i>Syngnathus rostellatus</i>	Nilsson's pipefish	M	EA
<i>Syngnathus typhle</i>	deep-snouted pipefish	M	
ORDER SCORPAENIFORMES			
<i>Agonus cataphractus</i>	hook-nose (pogge)	M	EA
<i>Aspitrigla cuculus</i>	red gurnard	M	EA
<i>Cottus gobio</i>	bullhead (miller's thumb)	F	EA
<i>Cyclopterus lumpus</i>	lumpsucker	M	
<i>Eutrigla gurnardus</i>	grey gurnard	M	EA

Species	Common name	Life cycle	Record
<i>Helicolenus dactylopterus</i>	blue-mouth	M	
<i>Liparis liparis</i>	sea-snail	M	EA
<i>Liparis montagui</i>	Montagu's sea-snail	M	
<i>Myoxocephalus scorpius</i>	bull-rout (short-spined sea scorpion)	M	EA
<i>Taurulus bubalis</i>	sea scorpion (long-spined sea scorpion)	M	EA
<i>Taurulus lilljeborgi</i>	Norway bullhead	M	
<i>Trigla lucerna</i>	tub gurnard	M	EA
<i>Trigloporus lastoviza</i>	streaked gurnard	M	

ORDER PERCIFORMES

<i>Ammodytes marinus</i>	Raitt's sandeel	M	
<i>Ammodytes tobianus</i>	sandeel	M	EA
<i>Aphia minuta</i>	transparent goby	M	
<i>Callionymus lyra</i>	dragonet	M	
<i>Chelon labrosus</i>	thick-lipped grey mullet	M	EA
<i>Crenilabrus melops</i>	corkwing wrasse	M	EA
<i>Ctenolabrus rupestris</i>	goldsinny	M	EA
<i>Dicentrarchus labrax</i>	bass	E, R	EA
<i>Echiichthys vipera</i>	weever (lesser weever)	M	
<i>Gobius niger</i>	black goby	M	A
<i>Gobius paganellus</i>	rock goby	M	
<i>Gymnocephalus cernuus</i>	ruffe	F	A
<i>Hyperoplus lanceolatus</i>	greater sandeel (launce)	M	
<i>Labrus bergylta</i>	ballan wrasse	M	EA
<i>Liza aurata</i>	golden grey mullet	M	EA
<i>Liza ramada</i>	thin-lipped grey mullet	M, R	EA
<i>Mullus surmuletus</i>	red mullet	M	EA

ORDER PERCIFORMES

<i>Perca fluviatilis</i>	perch	F, R	EA
<i>Pholis gunnellus</i>	butterfish (gunnel)	M	EA
<i>Pomatoschistus lozanoi</i>	Lozano's goby	M	
<i>Pomatoschistus microps</i>	common goby	E	EA
<i>Pomatoschistus minutus</i>	sand goby	E	EA
<i>Pomatoschistus pictus</i>	painted goby	M	
<i>Scomber scombrus</i>	mackerel	M	
<i>Spondyliosoma cantharus</i>	black sea-bream	M	
<i>Stizostedion lucioperca</i>	zander	F	EA
<i>Thorogobius ephippiatus</i>	leopard-spotted goby	M	
<i>Trachurus trachurus</i>	scad (horse mackerel)	M	EA

ORDER PLEURONECTIFORMES

<i>Arnoglossus laterna</i>	scaldfish	M	
<i>Buglossidium luteum</i>	solenette	M	
<i>Hippoglossoides platessoides</i> (unconfirmed)	long rough dab	M	
<i>Limanda limanda</i>	dab	M	EA
<i>Microstomus kitt</i>	lemon sole	M	EA
<i>Phrynorhombus regius</i>	Eckström's topknot	M	
<i>Pleuronectes flesus</i>	flounder	E, R	EA
<i>Pleuronectes platessa</i>	plaice	M	EA
<i>Scophthalmus rhombus</i>	brill	M	
<i>Solea solea</i>	sole	M	EA

ORDER TETRAODONTIFORMES

<i>Balistes capriscus</i>	triggerfish	M	EA
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TABLE 2. Fish species caught in the freshwater River Thames by the Environment Agency or preceding organizations between 1995 and 2001. Scientific nomenclature, common names and arrangement of orders are according to Wheeler (1992).

Key: abundant (A); common (C); patchy (PA); evidence of recruitment within river (R); rare (RA).

Species	Common name	Notes
ORDER PETROMYZONTIFORMES		
<i>Lampetra planeri</i>	brook lamprey	RA
ORDER ANGUILLIFORMES		
<i>Anguilla anguilla</i>	eel	C
ORDER CYPRINIFORMES		
<i>Abramis brama</i>	bream	PA, R
<i>Alburnus alburnus</i>	bleak	A, R
<i>Barbatula barbatula</i>	stone loach	PA, R
<i>Barbus barbus</i>	barbel	PA, R
<i>Carassius auratus</i>	goldfish	RA
<i>Carassius carassius</i>	crucian carp	RA
<i>Ctenopharyngodon idella</i>	grass carp	RA
<i>Cyprinus carpio</i>	carp	PA
<i>Gobio gobio</i>	gudgeon	A, R
<i>Leuciscus cephalus</i>	chub	C, R
<i>Leuciscus leuciscus</i>	dace	C, R
<i>Phoxinus phoxinus</i>	minnow	C, R
<i>Rutilus rutilus</i>	roach	A, R
<i>Scardinius erythrophthalmus</i>	rudd	RA
<i>Tinca tinca</i>	tench	PA
Hybrid bream × roach		
ORDER SILURIFORMES		
<i>Silurus glanis</i>	wels	RA
ORDER SALMONIFORMES		
<i>Esox lucius</i>	pike	C, R
<i>Oncorhynchus mykiss</i>	rainbow trout	RA
<i>Salmo salar</i>	salmon	RA
<i>Salmo trutta</i>	brown trout	RA, R
	sea trout	PA
ORDER GASTEROSTEIFORMES		
<i>Gasterosteus aculeatus</i>	three-spined stickleback	C, R
ORDER SCORPAENIFORMES		
<i>Cottus gobio</i>	bullhead (miller’s thumb)	PA, R
ORDER PERCIFORMES		
<i>Gymnocephalus cernuus</i>	ruffe	PA, R
<i>Perca fluviatilis</i>	perch	A, R
ORDER PLEURONECTIFORMES		
<i>Pleuronectes flesus</i>	flounder	PA

Book reviews

The cane toad. The history and ecology of a successful colonist. Christopher Lever. 2001. Westbury Academic and Scientific Publishing, Otley. 230 pp., hardback £44.00, ISBN 1 84103 006 6.

I will try to keep this review short since the species covered by this monograph is not present in the London area and is not likely to become established given that a critical minimum temperature of $>6^{\circ}\text{C}$ is required — even global warming would have a long way to go to make Britain into suitable habitat.

The book can be summarized quite simply as ‘everything you wanted to know about cane toads but were afraid to ask!’ It will remain the standard work on the species for many years to come. In fact, this is nothing less than you would expect from one of the world’s leading authorities who has studied introduced species around the planet for over forty years.

The cane toad is now the most widely distributed terrestrial vertebrate in the Pacific and Caribbean regions and this book describes its natural history, ecology, economic impact and the history of the species by area, including two separate chapters devoted to the situation in Australia, where I first encountered the amphibian spreading into northern New South Wales in 1990.

The book concludes with an important and succinct chapter describing the global decline of amphibians — a major conservation threat to this taxon and one that has already led to species extinctions. The final reference section is extensive and includes papers by Wendy Seabrook, a former LNHS member from Totteridge, who completed her PhD on cane toads at the University of Sydney.

CLIVE HERBERT

Alfred Russel Wallace. A life. Peter Raby. Chatto & Windus. 2001. 340 pp. £20 hardback. ISBN 0 7011 6838 2.

Alfred Russel Wallace was one of the most famous naturalists of the nineteenth century; indeed, he had almost scooped Charles Darwin by proposing his own theory of natural selection, a fact that has so often been overlooked. Fortunately, however, this oversight has been made up for in recent years with the publication of several biographies of Wallace. Peter Raby’s book gives a most readable and expertly researched account of Wallace’s life, the high point of which was the joint presentation in London in 1858 (even though Wallace was on the opposite side of the World), of Wallace’s and Darwin’s papers on evolution by natural selection. A year later, Darwin’s *On the origin of species* was published.

After his death in 1913, Wallace was largely forgotten compared to Darwin who many continued to regard as being the sole originator of the theory of natural selection. Alfred Russel Wallace was born in Usk, Monmouthshire in 1823 of relatively poor parents. He had none of Darwin’s advantages or connections. After the death of his father twenty years later, his mother was left with very little money to support and educate the family, so a university education for Alfred was out of the question. Undeterred, he made full use of libraries and other facilities wherever he was living. He met H. W. Bates, a fellow naturalist, and together they set off to South America to explore the regions of the Amazon and the Rio Negro. They then decided to work separately. For instance, during an eight-year journey over thousands of miles, Wallace discovered many unknown species and he identified a point of divide between the Oriental and Australian zoogeographical regions which became known as Wallace’s line. On returning finally to England he continued to be active, eventually dying in 1913 at the age of ninety.

Members of the London Natural History Society might be surprised to learn that Wallace had attempted to become Superintendent of Epping Forest. He was also, amongst other things, concerned with the terrible injustices suffered by Irish tenants at the hands of their landlords during the agricultural depression of the 1870s.

This is a most authoritative and absorbing book. It puts Alfred Russel Wallace back at centre stage where he rightly belongs. He was fourteen years Darwin’s junior and died twenty-two years after Darwin. He was a pall-bearer at Darwin’s funeral in Westminster Abbey.

K.H. HYATT

The beetles and other invertebrates of Sydenham Hill and Dulwich Woods — indicators of ancient woodland

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Summary

Dulwich and Sydenham Hill Woods are thought to be ancient woodland, relics of the Great North Wood, and they have previously been considered important for their ancient woodland flora. Entomological surveys confirm that many of the insects, notably certain beetles, are specifically associated with ancient woods and some have been given ‘indicator’ status because of their reliance on a continual supply of dead timber. These and other uncommon and unusual species are discussed and the woods are emphasized as an important and extremely valuable remnant of former ancient woodland in what is now urban south-east London.

Introduction

Dulwich and Sydenham Hill Woods are reckoned to be part of the ‘Great North Wood’ — once a series of oak woods, copses and partly wooded commons extending from Selhurst in the south to Brockley in the north. Very little from this long chain of woods now survives, but there are some tantalizing place names — Norwood, Forest Hill, Honor Oak and Wood Vale, for example.

Today the Dulwich and Sydenham Woods are still dominated by sessile oak *Quercus petraea*, but they have become rather overgrown in many parts. Nevertheless, they still retain much of the invertebrate interest associated with ancient woodlands, and the large old trees stand proud and imposing throughout the area — in the woods we see today, in local parks and gardens, and even in gardens and along roadsides.

As relics of a lost way of rural life in which woodland management was intense, the woods are immensely important historical features that need to be conserved, protected and understood. The flora and fauna they support are relics also, rich with both locally and nationally important species. They are constantly in danger of being eroded, diluted and corrupted. Only by actively managing the ‘semi-natural’ woods, can their whole intrinsic nature be protected.

Dulwich and Sydenham Hill Woods, together with the local byway Cox’s Walk, have long been recognized as an important local site for nature conservation.

They were ranked as being of Metropolitan Importance by Archer et al. (1989), because of their documented antiquity. The flora and vertebrate fauna are relatively well recorded and inroads have been made into invertebrate recording. The stag beetle is well known there and eighteen species of butterfly are recorded, including silver-washed fritillary and purple hairstreak. Their importance as one of London's innermost ancient woodland relics is still emerging.

An invertebrate survey, commissioned by the London Wildlife Trust, which manages part of the woods, was carried out during 1997 (Jones 1998), and demonstrated the presence in the woods of many unusual and interesting species. These included many insects particularly associated with ancient woodlands — those woods and copses thought to have been present before the sixteenth century — in particular many specialist beetles which breed in decaying wood. A follow-up survey, further to study the beetles was commissioned in 2000. It was to focus, in particular, on those beetle species associated with dead wood and which have been shown to require a continuous, uninterrupted supply of dead and decaying timber. These insects represent a truly relic community in a relic habitat. The report of that survey was produced in 2000 (Jones 2000). This article is a composite summary of the two reports.

The woods

The woods are currently in the London Borough of Southwark, but were formally in what was the parliamentary county Surrey. In fact, the old vice-county boundary between Dulwich (Surrey, VC17) and Sydenham (West Kent, VC16) runs along the east side of Sydenham Hill Wood. Being situated against such a boundary is in itself a sign that the woodland is ancient. The argument runs that as land became occupied, enclosed and cultivated, the last remaining areas of wilderness, usually woodland in lowland England, were left at the extremes of the parish, furthest away from the village centre.



FIGURE 1. Sketch map of Sydenham Hill Wood, Dulwich Wood and Cox's Walk.

The woods (Figure 1), totalling about 25 hectares, form an irregular (another sign of ancientness) sickle shape about 1.25 km long. To the east, hanging on a fairly steep west-facing slope is Sydenham Hill Wood, bordered at the bottom by a disused railway line. Dulwich Wood is moderately level, extending away west and south from Sydenham Hill Wood. Cox's Walk starts on Lordship Lane, near St Peter's Church and heads due south, crosses the old railway line and rises east up the hill following the edge of Sydenham Hill Wood to the modern road called 'Sydenham Hill' at the top.

A thorough description and history of Sydenham Hill and Dulwich Woods will be found in the booklet *Nature conservation in Southwark* (Archer et al. 1989) and similar details for Cox's Walk will be found in the London Wildlife Trust report on the byway (White and Frith 1996). The history, as well as the natural history, of the woods is also alluded to in the botanical surveys carried out during the late 1950s (Lousley 1959, 1960), when their relic woodland status was first recognized.

Historical records detail the antiquity of the sites. The invertebrate fauna of the woods supports the notion that they are truly ancient relics, and it includes many species thought to be associated only with areas where the continual presence of dead and decaying timber over a very long period has allowed them to survive. These indicators of ecological continuity, together with other interesting and uncommon species are discussed.

The surveys

The invertebrate surveys of the woods were commissioned by the London Wildlife Trust, who lease and manage Sydenham Hill Wood from the London Borough of Southwark. The survey included Sydenham Hill Wood itself, together with Dulwich Wood (those parts with public access only), and Cox's Walk, an old by-way running up to, through and past Sydenham Hill Wood.

The surveys combined field visits with previously recorded data. The woods were visited on several occasions in 1997 and again during 2000. Further specimens were obtained from Malaise trap samples kept in alcohol at the nearby Horniman Museum, Forest Hill, since they were captured in a small fenced enclave in Sydenham Hill Wood from 1993 to 1997. Some pinned specimens were also housed within the entomological collections at the Museum, collected in the last few years.

Existing data for the woods comprised various lists from visits of other local naturalists kept at the Horniman Museum, where the London Wildlife Trust maintains an office for the warden of Sydenham Hill Wood. The largest of these lists is an extensive Diptera survey carried out by Andrew Godfrey during 1987 and 1988 (Godfrey 1988) during the period when he was keeper of natural history at the Horniman Museum.

In addition, a few *ad hoc* records from Dulwich Upper Wood are included. This small wood, managed by the Trust for Urban Ecology, is an extension of Dulwich Woods, to the south, and extends nearly to Crystal Palace.

Results

The invertebrate survey completed in 1997 (Jones 1998) included a systematic list of 687 invertebrate species (145 beetles). The follow-up survey concentrated only on beetles associated with woodland, and in particular those associated with dead-wood habitats and listed 98 beetle species. To date the final list totals 164 beetle species. These are detailed below. A selected species list of other insect groups is also given. Not surprisingly, many of the insects were those often found in woods and gardens in and around urban London. However, there were also many which are uncommon and included some well known to be specifically associated with long continuity of mature timber and recognized as 'indicator' species (Harding and Rose 1986).

The beetles of Sydenham Hill and Dulwich Woods

Also included are records from Cox’s Walk and Dulwich Upper Wood, which are natural extensions of the ancient woodland hereabouts (see map, Figure 1).

Statuses are based on those given in the *Red Data Book* for insects (Shirt 1987) and reviews of the British Coleoptera (Hyman and Parsons 1992, 1994). Provisional statuses are those given in the interim reports by Hyman (1985, 1986). Full criteria for according the various statuses are complex, but a summary is given in Appendix 2.

Harding and Rose (H&R) grades and scores are measures of ancient woodland indicator status given by Harding and Rose (1986). They are further discussed below.

The saproxylic quality index (SQI) is based upon scores published by Fowles et al. (1999). It is further discussed below.

Species	Notes	Status	H & R grade	H & R score	SQI
Aderidae , minute fungus beetles associated with ancient dead wood.					
<i>Aderus oculatus</i> (Payk.)	Ancient woods, dead trees, England. One specimen from standing dead beech trunk, 8.vii.1997. A very local species associated with large dry fungoid trees.	Nb	3	1	8
Anobiidae , woodworm beetles, minute to small beetles that feed in dead wood.					
<i>Anobium punctatum</i> (Deg.)	Various dead timber, the common domestic woodworm.	com	—	—	1
<i>Hemicoelus fulvicornis</i> (Sturm)	Various dead timber.	com	—	—	1
<i>Ptilinus pectinicornis</i> (L.)	On various dead timbers, notably sycamore in the London area. Many specimens, throughout the woods, 1997 and 2000. It attacks mainly dry timber, especially standing dead trunks, and including sycamore in the London area.	loc	—	—	1
Apionidae , minute weevils which feed on various plants.					
<i>Apion aeneum</i> (Fab.)	On mallows <i>Malva</i> .	com	—	—	—
<i>Apion frumentarium</i> (L.)	On docks, <i>Rumex</i> .	com	—	—	—
<i>Apion radiolus</i> (Marsh.)	On mallows, <i>Malva</i> .	com	—	—	—
<i>Ceratapion onopordi</i> (Kirby)	On various composites.	com	—	—	—
<i>Eutrichapion simile</i> (Kirby)	On birch catkins.	loc	—	—	—
<i>Kalcapion semivittatum</i> (Gyll.)	On annual mercury <i>Mercurialis annua</i> in disturbed ground, gardens etc. Several by sweeping in Cox’s Walk, 3.vii and 20.ix.1997. This is a very restricted species, mainly of south-east England, but it is widespread in the London area and is possibly still spreading.	Na	—	—	—
<i>Malvapion malvae</i> (Fab.)	On mallows <i>Malva</i> .	com	—	—	—
<i>Protapion dichroum</i> (Bedel)	On clovers <i>Trifolium</i> .	com	—	—	—
<i>Pseudapion rufirostre</i> (Fab.)	On mallows <i>Malva</i> .	com	—	—	—
<i>Taenapion urticarium</i> (Herbst)	On stinging nettles <i>Urtica dioica</i> . Several by sweeping in Cox’s Walk, 20.viii.1997. This is a very local species, mainly of southern and south-east England. It is very uncommon in the London area.	v loc	—	—	—
Biphylidae , minute fungus beetles associated with dead wood.					
<i>Biphylus lunatus</i> (Fab.)	In <i>Daldinia concentrica</i> fungus on ash trees and logs, ancient woods. Several throughout the woods, 1997 and 2000. A widespread, but local species, especially uncommon in the London area.	v loc	3	1	4

Species	Notes	Status	H & R grade	H & R score	SQI
<i>Diplocoelus fagi</i> Guér.-Méne.	Old woods under bark, beech and sycamore. Very many throughout the woods, 1997 and 2000, under beech bark, but also under sycamore bark infected with sooty bark disease, a fungus, <i>Cryptostroma corticale</i> . Also found in Dulwich Upper Wood, 22.v.2000. Its newly discovered association with sycamore probably means its indicator status needs to be revised.	Nb	2	2	8
Buprestidae , jewel beetles, minute to small beetles mainly breeding in dead wood.					
<i>Agrilus laticornis</i> (Ill.)	Broad-leaved woodland, in oak logs etc. Several by sweeping and beating oaks, Sydenham Hill Wood and Cox's Walk, 20.viii.1997. An uncommon but fairly widespread species in London woodlands.	Nb	—	—	8
<i>Agrilus pannonicus</i> (P. & M.)	In large dead oak stumps and trunks. Larvae and characteristic D-shaped holes found throughout the woods in oak logs and stumps, 1997 and 2000. Although originally given vulnerable status (RDB2) because of its extreme rarity in the 19th and early 20th centuries, it appears to have become more widespread since the 1980s. It is not uncommon in the London area (Hackett 1995, Jones 1996b)	Na	2	2	8
Byturidae , strawberry beetles, small beetles associated with brambles and other rosaceous plants.					
<i>Byturus tomentosus</i> (Deg.)	Widespread, on bramble etc.	com	—	—	—
Cantharidae , soldier beetles, small to medium-sized beetles with predatory larvae.					
<i>Cantharis decipiens</i> Baudi	Larvae predatory in rotten wood, soil etc.	loc	—	—	—
<i>Cantharis nigricans</i> Müll.	Larvae predatory in rotten wood, soil etc.	com	—	—	—
<i>Malthinus flaveolus</i> (Herbst)	Woods, larvae predatory in rotten wood.	com	—	—	1
<i>Malthinus seriepunctatus</i> Kies.	Woods, larvae predatory in rotten wood.	loc	—	—	2
<i>Malthodes minimus</i> (L.)	Woods, larvae predatory in rotten wood.	com	—	—	1
Carabidae , ground beetles, small to large predatory species.					
<i>Abax parallelepipedus</i> (P.&M.)	Under logs, stones etc., woods.	com	—	—	—
<i>Amara aenea</i> Deg.	Various habitats.	com	—	—	—
<i>Amara familiaris</i> Dufts.	Various habitats.	com	—	—	—
<i>Bembidion lunulatum</i> Geoff.	Clay areas, often near water.	loc	—	—	—
<i>Bradycellus verbasci</i> Dufts.	Various habitats.	com	—	—	—
<i>Carabus violaceus</i> L.	Once a common garden species, now found mainly in woodlands.	loc	—	—	—
<i>Dromius linearis</i> (Ol.)	Various grassy habitats.	com	—	—	—
<i>Dromius quadrinotatus</i> Panz.	Usually under loose tree bark.	com	—	—	—
<i>Leistus spinibarbis</i> (Fab.)	Variety of habitats, woodland, grassland.	com	—	—	—
<i>Loricera pilicornis</i> (Fab.)	Moist and marshy woods and meadows.	loc	—	—	—
<i>Nebria brevicollis</i> (Fab.)	Various garden, woodland and meadows.	v com	—	—	—
<i>Notiophilus biguttatus</i> Fab.	Various habitats.	com	—	—	—
<i>Platyderus ruficollis</i> (Marsh.)	Dry sandy soils, mainly in the south and east. Several specimens found under logs, Dulwich Upper Wood, 22.v.2000. This is a very local species, but is fairly widespread.	Nb	—	—	—
<i>Pterostichus madidus</i> (Fab.)	Various habitats.	com	—	—	—
<i>Synuchus nivalis</i> (Panz.)	Various habitats.	loc	—	—	—
<i>Trechus obtusus</i> Er.	Various habitats.	com	—	—	—

Species	Notes	Status	H & R grade	H & R score	SQI
Cerambycidae , longhorns, small to large beetles which breed in dead wood.					
<i>Clytus arietis</i> (L.)	In dead wood of various broad-leaved trees.	com	—	—	1
<i>Grammoptera ruficornis</i> (Fab.)	Larvae in dead branches of various trees.	com	—	—	1
<i>Phymatodes testaceus</i> (L.)	Larvae in various dead broad-leaved timbers. Several dead specimens dug out from fallen oaks, 3.xi.1997 and 7.vi.2000. Although provisionally given nationally scarce status, this was not confirmed. It remains a very local species, especially in the London area.	v loc	3	1	4
Cerylonidae , bark beetles, minute species associated with fungoid bark.					
<i>Cerylon ferrugineus</i> (Steph.)	Under fungoid bark of rotten logs.	com	—	—	2
Chrysomelidae , leaf beetles, small to medium-sized beetles which feed on various trees and plants.					
<i>Aphthona euphorbiae</i> (Schr.)	On flaxes, including oilseed flax <i>Linum usitatissimum</i> , the crop.	com	—	—	—
<i>Chalcoides aurea</i> (Fourc.)	On poplars and willows <i>Populus</i> and <i>Salix</i> .	com	—	—	—
<i>Cryptocephalus pusillus</i> Fab.	On birch <i>Betula</i> .	loc	—	—	—
<i>Lamprosoma concolor</i> Sturm	A mainly woodland species, found by sweeping or in moss etc. One swept, Dulwich Upper Woods, 22.v.2000.	loc	—	—	—
<i>Orsodacne lineola</i> (Panz.)	Broad-leaved woods, hawthorn and <i>Sorbus</i> . Two specimens were swept in Cox's Walk, 25.v and 7.vi.2000. Some were also seen in Dulwich Upper Wood on 22.v.2000, comprising several of the many different colour forms. This very local species is associated with old woodland edges and hedgerows.	Nb	—	—	—
<i>Sphaeroderma testaceum</i> (Fab.)	On thistles.	com	—	—	—
<i>Longitarsus flavicornis</i> (Steph.)	On ragwort <i>Senecio</i> , in southern England.	loc	—	—	—
Cisiidae , fungus beetles, minute to small beetles which breed in fungus.					
<i>Cis boleti</i> (Scop.)	Fungus on broad-leaved trees.	com	—	—	1
<i>Octotemnius glabriculus</i> (Gyl.)	Fungus on broad-leaved trees.	com	—	—	1
<i>Sulcasis bicornis</i> (Mell.)	In bracket fungi on rotten logs, southern England. Several in rotten bracket fungus on beech stump, Sydenham Hill Woods, 11.ix.1997. A widespread but very local species associated with fungus on beech, alder, willow, birch, etc.	Nb	—	—	8
Coccinellidae , ladybirds, small beetles which feed on aphids or mildew.					
<i>Adalia bipunctata</i> (L.)	Aphid predator, gardens, woods and meadows.	com	—	—	—
<i>Calvia 14-guttata</i> (L.)	Aphid predator, gardens, woods and meadows.	com	—	—	—
<i>Coccinella septempunctata</i> L.	Aphid predator, gardens, woods and meadows.	com	—	—	—
<i>Exochomus quadripustulata</i> (L.)	Scale insect predator, woods and hedgerows.	com	—	—	—
<i>Propylea 14-punctata</i> (L.)	Aphid feeder, gardens and fields.	com	—	—	—
<i>Rhyzobius litura</i> (Fab.)	Grassy places.	com	—	—	—
<i>Scymnus auritus</i> (Thunb.)	Grassy places.	com	—	—	—
Colydiidae , fungus beetles, small species breeding under fungoid bark.					
<i>Bitoma crenata</i> (Fab.)	Under fungoid bark, ancient woods. Several specimens throughout the woods, 1997, 2000. A widespread but local species, especially uncommon in the London area.	v loc	3	1	4

Species	Notes	Status	H & R grade	H & R score	SQI
<i>Cicones undatus</i> Guér.-Méne.	Under sycamore bark infected with sooty bark disease. Many specimens throughout the woods, 1997 and 2000, under the bark of sycamore trees, logs and palings. Also recorded from Dulwich Upper Wood in 1992, then the third British locality after Windsor Forest and Nunhead Cemetery, and again, 22.v.2000. The sooty bark disease, a fungus <i>Cryptostroma corticale</i> , with which the beetle is associated, kills the trees, especially in hot years when the trees are under water stress. Although originally given endangered (<i>Red Data Book 1</i>) status when it was first found in Windsor Forest in the 1980s, it has proved to be common and widespread in the London area (Jones 1993a, 1996a). Its status needs to be revised.	rdb1	—	—	—
<i>Synchita separanda</i> Reitt.	Under sycamore bark infected with sooty bark disease. Several specimens under peeling bark of sycamore fence palings and also under beech bark, 28.v and 3.xi.1997 and 9.v.2000. Originally given rare (<i>Red Data Book 3</i>) status when it was first discovered in Britain in 1964, it has since been found in several London localities after its association with the sycamore was discovered (Jones 1993a). Its <i>Red Data Book</i> and indicator statuses probably need to be revised. It remains, nevertheless, very local.	RDB3	1	3	24
Corylophidae , minute beetles of the leaf litter.					
<i>Sericoderus lateralis</i> Gyl.	Leaf litter etc.	loc	—	—	—
Cryptophagidae , fungus beetles, minute beetles associated with mould and fungus.					
<i>Caenoscelis subdeplanata</i> Bris.	Decaying vegetable matter, recent immigrant.	loc	—	—	—
<i>Cryptophagus scanicus</i> (L.)	Decaying vegetable matter.	com	—	—	—
Cucujidae , bark beetles, minute beetles feeding under fungoid bark.					
<i>Notolaemus unifasciatus</i> (Latr.)	Ancient woods, under the bark of oak, hornbeam, etc. Several specimens under rotten oak bark, Cox's Walk, 25.v.2000. A very local species of ancient woodlands in southern England.	Na	2	2	16
Curculionidae , weevils, minute to medium-sized beetles associated with various plants, trees and dead wood.					
<i>Acalles pinoides</i> (Marsh.)	Leaf litter in broad-leaved woods. Several specimens under a sawn log, Sydenham Hill Wood, 8.vii.1997. A widespread, but very local species.	Nb	—	—	—
<i>Anthonomus pedicularius</i> (L.)	On hawthorn.	com	—	—	—
<i>Anthonomus rubi</i> (Herbst)	On bramble, rose etc.	com	—	—	—
<i>Barypeithes pellucidus</i> (Boh.)	In leaf litter, under logs etc.	com	—	—	—
<i>Ceutorhynchus contractus</i> (Mars.)	On crucifers.	com	—	—	—
<i>Ceutorhynchus erysimi</i> (Fab.)	On shepherd's purse <i>Capsella bursa-pastoris</i> .	loc	—	—	—
<i>Ceutorhynchus pollinaris</i> (Forst.)	On nettles <i>Urtica dioica</i> .	com	—	—	—
<i>Curculio glandium</i> Marsh.	On oaks.	loc	—	—	—
<i>Curculio mucum</i> L.	On hazel.	loc	—	—	—
<i>Curculio pyrrhoceras</i> Marsh.	On oaks.	loc	—	—	—
<i>Curculio venosus</i> Grav.	On oaks.	loc	—	—	—
<i>Dorytomus melanophthalmus</i> (Payk.)	Various trees and shrubs.	com	—	—	—

Species	Notes	Status	H & R grade	H & R score	SQI
<i>Euophryum confine</i> (Broun)	In various rotten timber. Many specimens in rotten wood, throughout the woods. A native of New Zealand, but since its discovery in Britain in 1948 it has become extremely common.	com	—	—	—
<i>Miccotrogus picirostris</i> (Fab.)	On various Fabaceae.	com	—	—	—
<i>Polydrusus cervinus</i> (L.)	On various trees, a widespread woodland species.	com	—	—	—
<i>Sitona lepidus</i> Gyll.	Various habitats, gardens, woods and meadows.	com	—	—	—
<i>Sitona lineatus</i> (L.)	Various habitats, gardens, woods and meadows.	com	—	—	—
<i>Strophosoma melanogrammum</i> (L.)	On various trees, a widespread woodland species.	com	—	—	—
<i>Trichosirocalus troglodytes</i> (Fab.)	On ribwort plantain <i>Plantago lanceolata</i> .	com	—	—	—
Dermestidae , hide beetles, small to medium-sized beetles associated with carrion, animal nests and stored animal and vegetable products.					
<i>Anthrenus fuscus</i> Ol.	On flowers, in nests, stored products, etc.	com	—	—	—
<i>Anthrenus verbasci</i> L.	On flowers, in nests, stored products, etc., the ‘museum’ beetle.	com	—	—	—
<i>Ctesias serra</i> (Fab.)	In spider webs under bark, scavenges on the remains of dead insects. Larvae and shed larval skins found under loose bark throughout the woods, 1997 and 2000. An adult was also found in Dulwich Wood, 28.v.1997. Although very local, it is fairly widespread in the London area.	Nb	3	1	4
Elateridae , click beetles, small to large species which breed in rotten timber.					
<i>Agriotes acuminatus</i> Steph.	Larvae in grass roots etc.	com	—	—	—
<i>Agriotes pallidulus</i> (Ill.)	Larvae in grass roots etc.	com	—	—	—
<i>Athous campyloides</i> Newm.	Associated with rough grassy places. In Malaise-trap material, 1–20.vii.1993. This rather local species is more or less confined to south-east England. The larvae are thought to feed on grass roots. It is fairly widespread in the London area (Jones 2001).	Nb	—	—	—
<i>Athous haemorrhoidalis</i> Fab.	Larvae in dead wood of various trees.	com	—	—	—
<i>Athous hirtus</i> (Herbst)	Larvae in dead wood of various trees. One specimen, Dulwich Upper Wood, 22.v.2000. Although generally frequent and widespread it is very uncommon in the London area.	loc	—	—	—
<i>Dalopius marginatus</i> (L.)	Larvae in grass roots, rotten wood etc.	com	—	—	—
<i>Denticollis linearis</i> (L.)	Larvae in rotten wood.	loc	—	—	1
Erotylidae , fungus beetles, minute to small beetles which breed in fungus and decaying vegetable matter.					
<i>Dacne bipustulata</i> (Thunb.)	In rotten wood and fungus. Many in fungus on dead standing tree, Sydenham Hill Wood, 28.v.1997. A very local species of southern England.	v loc	—	—	2
Eucnemidae , bark beetles, small beetles which breed in rotten wood.					
<i>Melasis buprestoides</i> (L.)	Rotten timber, ancient broad-leaved woods. Under bark on various occasions during 1997 and in Malaise-trap material, 1997. This very local species is associated with broad-leaved woodland across most of England except the south-west.	Nb	3	1	4

Species	Notes	Status	H & R grade	H & R score	SQI
Hydrophilidae , mud and water beetles, minute to large species associated with ponds, lakes, rivers, etc.					
<i>Anacaena globulus</i> (Payk.)	Ponds and ditches.	com	—	—	—
Lathridiidae , minute beetles associated with fungus and mould.					
<i>Aridius bifasciatus</i> (Reitt.)	Grassy places, in mouldy grass cuttings etc., immigrant.	v com	—	—	—
<i>Aridius nodifer</i> (Westw.)	Various habitats, including meadows and fields.	com	—	—	—
<i>Corticaria serrata</i> (Payk.)	In refuse and under bark. From emergence trap material, 2.ix–10.x.2000. Provisional nationally scarce status was not confirmed, but it remains a very local species.	v loc	—	—	—
<i>Corticarina gibbosa</i> (Herbst)	Various habitats, including meadows and fields.	com	—	—	—
<i>Enicmus brevicornis</i> (Mann.)	Under bark of sycamore infected with sooty bark disease. Very many throughout the woods, 1997 and 2000, under sycamore bark of trees, logs and palings. Also recorded from Dulwich Upper Woods, 22.v.2000. Previously considered very uncommon, this beetle has since been found to be very common and widespread, especially in the London area where the sooty bark fungal disease, <i>Cryptostroma corticale</i> , is prevalent (Jones 1993a, 1996a).	N	2	2	8
Leiodidae , fungus beetles, minute beetles which breed in fungus, carrion and decaying matter.					
<i>Sciodrepoides watsoni</i> (Spence)	In carrion etc.	com	—	—	—
Lucanidae , stag beetles, large to very large beetles which breed in rotten heartwood.					
<i>Dorcus parallelipipedus</i> (L.)	Lesser stag beetle, in rotten wood. Larvae, adults and dead specimens throughout the woods, including Dulwich Upper Wood, 1997 and 2000.	com	—	—	2
<i>Lucanus cervus</i> (L.)	Stag beetle, in rotten heart wood. Several live specimens and larvae seen, 1997 and 2000, throughout the woods. This local species is found mainly in south London (where it is predominantly a garden species), and the New Forest. Widespread in southern England, but thought to be declining.	Nb	—	—	8
Melandryidae , fungus beetles, small to large beetles which breed in fungoid wood.					
<i>Conopalpus testaceus</i> (Fab.)	In rotten timber, standing timber, rather than logs. Many emerged from dead-wood emergence trap, 8.vi–21.vii.2000 and 21.vii–2.ix.2000. This is a widespread but very local species associated with ancient woods. A single specimen of the very rare all black variety <i>vigorsi</i> Steph. emerged 8.vi–21.vii.2000.	Nb	3	1	8

Species	Notes	Status	H & R grade	H & R score	SQI
<i>Hallomenus binotatus</i> (Quensel)	Fungoid wood, ancient broad-leaved woods. One specimen in bracket fungus, Dulwich Wood, 28.v.1997. Another specimen was swept in Dulwich Upper Wood, 5.vii.2000. A very local species associated with ancient woodlands.	Nb	3	1	8
Melyridae , false soldier beetles, small beetles with predatory larvae in soil and rotten wood.					
<i>Axinotarsus marginalis</i> (Lap.)	Various habitats, in rotten wood or soil.	com	—	—	—
<i>Malachius bipustulatus</i> (L.)	Various habitats, in rotten wood or soil.	com	—	—	1
<i>Malachius viridis</i> Fab.	Various habitats, in rotten wood or soil.	com	—	—	—
Mordellidae , flower beetles, small beetles which breed in dead wood.					
<i>Mordellistena variegata</i> (Fab.)	Broad-leaved woods, larvae in dead wood. In Malaise-trap material, 1993 and 1997. Although provisionally given nationally scarce status, this was not confirmed. It is very local in England, but fairly widespread in the London area.	v loc	—	—	8
Mycetophagidae , fungus beetles, small beetles which breed in fungoid wood.					
<i>Litargus connexus</i> (Fourc.)	Fungoid wood, broad-leaved woods.	loc	—	—	2
<i>Mycetophagus 4-pustulatus</i> (L.)	Under fungoid bark, ancient woodlands.	loc	—	—	2
Nitidulidae , pollen beetles, minute beetles associated with the flowers of various plants.					
<i>Brachypterus urticae</i> (Fab.)	On stinging nettles <i>Urtica dioica</i> .	com	—	—	—
<i>Epuraea aestiva</i> (L.)	In fungus.	com	—	—	—
<i>Epuraea pusilla</i> (Ill.)	In fungus.	com	—	—	—
Oedemeridae , flower beetles, small beetles which breed in dead stems.					
<i>Oedemera lurida</i> (Marsh.)	Grassy places.	com	—	—	—
Platypodidae , bark beetles, small beetles which breed in dead wood.					
<i>Platypus cylindrus</i> (Fab.)	In the bark of large oak stumps and logs. Several dug out from a fallen tree, Dulwich Wood, 8.vii and 20.viii.1997 and also in Malaise-trap material, Sydenham Hill Woods 1993. This very local species was originally given <i>Red Data Book</i> 3 (rare) status, but has since been found to be more widespread. It occurs in several London localities.	Nb	3	1	8
Ptiliidae , minute beetles associated with fungoid bark, mould and fungus.					
<i>Acrotrichis</i> species	In vegetable refuse and under bark.	—	—	—	—
<i>Pinella cavelli</i> (Broun)	Under dead bark, native of New Zealand.	loc	—	—	—
Rhizophagidae , bark beetles, minute to small beetles which breed under fungoid bark, predators of other bark insects.					
<i>Rhizophagus bipustulatus</i> (Fab.)	Under rotten bark, in bark beetle burrows.	com	—	—	1
<i>Rhizophagus dispar</i> (Payk.)	Under bark of various trees.	loc	—	—	1
<i>Rhizophagus perforatus</i> Er.	Under bark, especially logs on ground.	loc	—	—	2
Salpingidae , fungus beetles, small beetles which breed under fungoid bark.					
<i>Rhinosimus planirostris</i> (Fab.)	Under fungoid bark, broad-leaved trees.	loc	—	—	1
<i>Rhinosimus ruficollis</i> (L.)	Under fungoid bark, broad-leaved trees.	loc	—	—	1
Scolytidae , bark beetles, minute to small beetles which breed under dead bark.					
<i>Dryocoetinus villosus</i> (Fab.)	In the wood of various broad-leaved trees.	loc	—	—	2
<i>Hylesinus oleiperda</i> (Fab.)	In twigs of ash.	loc	—	—	2
<i>Scolytus intricatus</i> (Ratz.)	Under oak bark.	loc	—	—	2
<i>Scolytus rugulosus</i> Mull.	On <i>Malus</i> , <i>Prunus</i> and hawthorn.	loc	—	—	2

Species	Notes	Status	H & R grade	H & R score	SQI
<i>Xyleborus drygraphus</i> Ratz.	In oak, chestnut, beech and elm. Sydenham Hill Wood, 28.v and 8.vii.1997, in rotten bark. A very local species associated with ancient woodland.	Nb	3	1	8
<i>Xyleborus saxeseni</i> Ratz.	In oak wood. Sydenham Hill Wood, 7.vi.2000 and Dulwich Wood, 25.v.2000 under oak bark. Although provisionally given nationally scarce status, this was not confirmed. It is nevertheless, a very local species.	v loc	3	1	4
Scraptiidae , flower beetles, small beetles which breed in rotten wood.					
<i>Anaspis fasciata</i> Forst.	Adults on flowers, larvae in rotten wood.	com	—	—	2
<i>Anaspis lurida</i> Steph.	Adults on flowers, larvae in rotten wood.	com	—	—	2
<i>Anaspis maculata</i> Fourc.	Adults on flowers, larvae in rotten wood.	com	—	—	—
<i>Anaspis regimbarti</i> Schil.	Adults on flowers, larvae in rotten wood.	com	—	—	—
<i>Anaspis rufilabris</i> Gyl.	Adults on flowers, larvae in rotten wood.	com	—	—	1
Scydmaenidae , fungus beetles, minute beetles which breed under fungoid bark.					
<i>Scydmaenus rufus</i> M.& K.	Under dead bark, broad-leaved woods. Three specimens, 28.v and 11.ix.1997, under bark of cut logs. Although given <i>Red Data Book</i> status 2 (vulnerable), it has recently been suggested to be more widespread and its status may need revision. It remains very local however.	RDB2	3	1	24
Staphylinidae , rove beetles, minute to large beetles with varying life histories; predators and scavengers.					
<i>Atheta crassicornis</i> (Fab.)	Decaying organic matter.	com	—	—	—
<i>Atheta nigricornis</i> (Thoms.)	Decaying organic matter.	com	—	—	—
<i>Atheta (Acronota) parens</i> M.&R.	Leaf litter and under bark. Under oak bark, Sydenham Hill Woods, 11.ix.1997. A very local species from a variety of habitats including parks, gardens and woodlands.	N	—	—	—
<i>Bolitochara bella</i> Mark.	In fungus and fungoid wood.	loc	—	—	—
<i>Gabrius splendidulus</i> (Grav.)	Under rotten bark.	com	—	—	1
<i>Lathrobium ripicola</i> Czwaliņa	In decaying vegetable matter, under bark.	loc	—	—	—
<i>Leptusa fumida</i> Kr.	In decaying vegetable matter, under bark.	com	—	—	1
<i>Oligota flavicornis</i> (B. & L.)	On trees, thought to be a predator of mites. In Malaise-trap material, Sydenham Hill Woods, 1993. Very local, recorded from woods, gardens and orchards.	N	—	—	—
<i>Philonthus fimetarius</i> Grav.	In decaying organic matter.	com	—	—	—
<i>Philonthus sordidus</i> Grav.	In decaying organic matter.	com	—	—	—
<i>Philonthus varians</i> (Payk.)	In decaying organic matter.	com	—	—	—
<i>Quedius cruentatus</i> (Ol.)	In decaying organic matter.	loc	—	—	—
<i>Quedius fumatus</i> Steph.	In decaying vegetable matter, under logs.	loc	—	—	—
<i>Quedius lateralis</i> (Grav.)	In decaying organic matter.	loc	—	—	—
<i>Quedius tristis</i> Grav.	In decaying organic matter.	com	—	—	—
<i>Staphylinus olens</i> Muller	Gardens, parks, woods; predatory.	com	—	—	—
<i>Stenus bifoveolatus</i> Gyll.	Grassy places.	com	—	—	—
<i>Stenus fulvicornis</i> Steph.	Grassy places.	loc	—	—	—
<i>Tachinus signatus</i> Grav.	Various habitats.	com	—	—	—
<i>Tachyporus hypnorum</i> (Fab.)	Grassy places.	com	—	—	—
<i>Tachyporus pallidus</i> Sharp	Grassy places.	com	—	—	—

Species	Notes	Status	H & R grade	H & R score	SQI
Tenebrionidae , darkling beetles, small to very large beetles with varying life histories, including scavengers and detritivores.					
<i>Cylindronotus laevioctostriatus</i> (Goeze)	Under bark and in fungoid wood. Several under fungoid bark of various trees in the woods, 1997 and 2000. Although widespread, this is a local species. It is fairly common in the London area.	loc	—	—	—
Throscidae , small click beetles, small beetles which breed in dead timber.					
<i>Trixagus carinifrons</i> (de Bonv.)	In dead wood.	loc	—	—	—
<i>Trixagus dermestoides</i> (L.)	In dead wood.	com	—	—	—
Total scores: H&R — 23 (17 spp.)					
SQI — 228 (52 spp.)					

Discussion

It is clear from the above list of beetles and other invertebrates in the selected list of the appendix that many of the insects found in the woods are those truly associated with old or ancient woodland or pasture-woodland. This invertebrate evidence supports botanical knowledge of the woods’ antiquity (Lousley 1959, 1960).

Ecological continuity indicator species — beetles

Ancient woodlands have received quite some attention from ecologists, and led to the publication of lists of indicator beetle species by Harding and Rose (1986). They arranged indicator species into three groups.

- Group 1.** Species which are known to have occurred in recent times only in areas believed to be ancient woodland, mainly pasture woodland.
- Group 2.** Species which occur mainly in areas believed to be ancient woodland with abundant dead-wood habitats, but which also appear to have been recorded from areas that may not be ancient or for which the locality data are imprecise.
- Group 3.** Species which occur widely in wooded land, but which are collectively characteristic of ancient woodland with dead-wood habitats.

Following that publication, others have attempted to compare and contrast ancient woodland sites by constructing indices based upon these lists. For example, Alexander (1988) and Harding and Alexander (1994) suggested scores for the indicator beetle species listed by Harding and Rose (1986), those most linked to ancient woodland scoring higher than those only collectively associated, thus:

Harding and Rose group	Alexander score
Group 1	3
Group 2	2
Group 3	1

Examining published species lists from various sites enabled Harding and Alexander (1994) to prepare a table of species scores, the so-called index of ecological continuity, for well-known ancient woodland sites in Britain. In the previous survey of Sydenham Hill and Dulwich Woods (Jones 1998), fourteen indicator species were listed, scoring a respectable 19. Large and well-studied ancient woods scored very highly — Windsor Forest with 233, New Forest with

183 and Moccas Park with 129, these being Britain’s top three sites. However, most ancient woods scored much lower (Harewood Forest 22, Nettlecombe Park 23, Bookham Common 20, Ashted Common 33, etc.), and an index value of 20 appeared to identify the most important sites in a national series studied by Alexander (1995).

At the end of the follow-up survey in 2000, the number of indicator species has risen to seventeen, and the index of ecological continuity to 23. This was a very respectable count given the woods’ relatively small size, their extensive disturbance (Victorian railway cutting and house building) and their proximity to urban London.

Ancient woodland beetles — compiling a saproxylic quality index

Further interest in indicator species has produced more work, in particular on beetles, one of the groups of insects most strongly associated with ancient woods. Fowles (1997) discussed the rationale behind establishing a new system of scoring woods, based on species rarity scores and sought to establish a wider base of indicator species upon which scoring could be calculated. Fowles et al. (1999) gave a much longer list of nearly 600 beetle species than Harding and Rose’s (1986) limited list of about 200 species, and included common saproxylic (feeding in dead and rotten timber) species as well as the scarcer indicator species. They suggested a scoring system based upon national scarcity as follows:

Score	Status
1	common
2	local
4	very local/uncertain
8	Nationally Scarce (Notable B)
16	Nationally Scarce (Notable A)/ RDBK (insufficiently known)
24	RDB1 (Indeterminate)/ RDB3 (Nationally Rare)
32	RDB1 (Endangered)/ RDB2 (Vulnerable)/ RDB Appendix (Extinct)

Fowles et al. (1999) tested the reliability of these scores against 126 published species lists from various known ancient woodland localities across Great Britain, and satisfied themselves, and other colleagues, that the scheme had value in comparing and contrasting ancient woods. A minimum threshold of forty qualifying species was thought sufficient to ensure that unreliable (short and therefore unrepresentative) lists could be excluded.

To overcome the bias of recording effort, especially at large, well-known and oft-visited sites, they suggested the calculation of a ‘saproxylic quality index’, as well as a ‘total saproxylic quality score’. This was achieved by dividing the total score by the number of qualifying species and multiplying by 100.

This calculation applied to Sydenham Hill and Dulwich Woods demonstrates that fifty-two qualifying species achieved a total score of 228, giving a saproxylic quality index of:

$$228 \div 52 \times 100 = 438.5$$

Again, not surprisingly, Britain’s top sites had huge scores. Windsor Forest, for example, produced a list of 365 qualifying species, a total score of 3,092 and an index of 847.1. Fowles et al. (1999) suggest a saproxylic quality index approaching 600 (threshold of 590) could denote a site of international importance (they give 7 sites as likely to fall into this category) and an index over 500 could denote a site of national importance (a further 8 sites listed). They also

give a further list of 42 selected sites with scores ranging from 488.7 to 236.6. With a current index of 438.5, Sydenham Hill and Dulwich Woods (including Cox's Walk) rank impressively high in this series.

The importance of being sycamore

Despite its apparently very high index of 438.5, this score is likely to have been slightly inflated by an artefact of geography. Three high-scoring species included by Fowles et al. (1999) in their calculations, are less indicators of ancient woodland and more indicators of secondary woodland. *Diplocoelus fagi*, *Synchita separanda* and *Enicmus brevicornis*, turn out to be rather enigmatic species. Rather than being associated with the ancient broad-leaved tree species of lowland Britain, they are associated with sycamore *Acer pseudoplatanus*, a less than ancient and not a native tree species. Sycamore was first introduced into Britain in the fifteenth or sixteenth centuries (Rackham 1986) and although it is now a vigorous and pernicious weed tree in many areas, large and ancient specimens are still usually to be found near buildings, hedgerows or in parks, where they were deliberately planted.

All three of these enigmatic beetles, together with the supposedly endangered (*Red Data Book 1* status) *Cicones undatus*, are now known to be intimately associated with the sooty bark disease, *Cryptostroma corticale*, a fungus which attacks and eventually kills sycamore trees (Jones 1993a, 1996a). Trees are particularly prone to the disease in the London and Thames Valley areas. This is possibly because London has the highest mean annual temperature of anywhere in Britain, thus increasing the likelihood of water stress in the trees, a factor which is known to increase the voracity of the fungal attack (Dickenson and Wheeler 1981).

If these three beetles are 'demoted' in their rarity scores, in that they are less powerful indicators of ancient woodland and less scarce than was previously thought, it is reasonable to recalculate a saproxylic quality index, reducing their influence. Suggested new scores are *Diplocoelus fagi* 2 (reduced from 8), *Synchita separanda* 4 (reduced from 24) and *Enicmus brevicornis* 2 (reduced from 8). This gives an adjusted total score of 196 and adjusted saproxylic quality index of:

$$196 \div 52 \times 100 = 376.9$$

Although reduced, this revised Saproxylic Quality Index for Sydenham Hill and Dulwich Woods still ranks respectably high on the site list given by Fowles et al. (1999) and confirms the woods as an extremely important woodland locality in the London area.

Conclusion

Surveys of the saproxylic beetles and other insects confirm earlier evidence that Sydenham Hill and Dulwich Woods, together with Cox's Walk, have a rich fauna, and a particularly interesting and important dead-wood beetle fauna. The specialist and uncommon species found during the surveys highlight the woods as a site of Metropolitan Importance and confirm them as an important ancient woodland by virtue of their insect fauna.

Acknowledgements

My thanks are offered to all those who helped me with the surveys of the woods. John White of the London Wildlife Trust commissioned the two invertebrate surveys. He also prepared a list of ants found in the wood and produced all the various documents on previous lists and surveys from his files. Peter Hodge assisted with identification of some of the beetles. Peter Chandler commented on some of the fly records. Jim Brock offered help and hospitality at the Horniman Museum and contributed many Hymenoptera records. David Baldock and Graham Collins contributed further Hymenoptera and Diptera records from Malaise-trap material stored at the Horniman Museum. Mathew Frith, formerly with

London Wildlife Trust, also supplied several useful records from his files. Annette Jenks invited me to visit Dulwich Upper Wood as part of a BTCV-sponsored job-shadowing programme.

Copies of the original invertebrate surveys are available for a small copying charge from the London Wildlife Trust, Sydenham Hill Project, Horniman Museum, 100 London Road, Forest Hill, London SE23 (lwtsydenham@cix.co.uk).

References

- ALEXANDER, K.N.A. 1988. The development of an index of ecological continuity for deadwood associated beetles. *Antenna* **12**: 69–70.
- ALEXANDER, K.N.A. 1995. Historic parks and pasture-woodland: the National Trust resource and its conservation. *Biol. J. Linn. Soc.* **56** (Suppl.): 155–175.
- ARCHER, J., BRITTON, B., BURLEY, R., HARE, T. and YARHAM, I. 1989. *Nature conservation in Southwark*. Ecology Handbook 12. London Ecology Unit: 27–29.
- DICKENSON, S. and WHEELER, B.E.J. 1981. Effects of temperature, and water stress in sycamore, on growth of *Cryptostroma corticale*. *Trans. Br. mycol. Soc.* **76**: 181–185.
- FALK, S. 1991a. *A review of the scarce and threatened flies of Great Britain. Part 1*. Research and Survey in Nature Conservation No. 39. Nature Conservancy Council, Peterborough.
- FALK, S. 1991b. *A review of the scarce and threatened bees, wasps and ants of Great Britain*. Research and Survey in Nature Conservation No. 35. Nature Conservancy Council, Peterborough.
- FOWLES, A.P. 1997. The saproxylic quality index: an evaluation of dead wood habitats based on rarity scores, with examples from Wales. *Coleopterist* **6**: 61–66.
- FOWLES, A.P., ALEXANDER, K.N.A. and KEY, R.S. 1999. The saproxylic quality index: evaluating wooded habitats for the conservation of dead-wood Coleoptera. *Coleopterist* **8**: 121–141.
- GODFREY, A. 1988. *List of Diptera from Sydenham Hill Wood*. Unpublished report.
- HACKETT, D. 1995. The jewel beetle *Agrilus panonicus* in the London area. *Lond. Nat.* **74**: 161–164.
- HARDING, P.T. and ALEXANDER, K.N.A. 1994. The use of saproxylic invertebrates in the selection and evaluation of areas of relic forest in pasture woodland. *Br. J. Ent. nat. Hist.* **7** (Suppl.): 21–26.
- HARDING, P.T. and ROSE, F. 1986. *Pasture-woodlands in lowland Britain: a review of their importance for wildlife conservation*. Institute of Terrestrial Ecology, Abbots Ripton.
- HYMAN, P.S. 1985. *A provisional review of the status of British Coleoptera*. Invertebrate Site Register Report No. 60. Nature Conservancy Council, Peterborough.
- HYMAN, P.S. 1986. *A national review of British Coleoptera. 1a. A review of the statuses of British Coleoptera (in taxonomic order)*. Invertebrate Site Register Report No. 64. Nature Conservancy Council, Peterborough.
- HYMAN, P.S. and PARSONS, M.S. 1992. *A review of the scarce and threatened Coleoptera of Great Britain. Part 1*. Joint Nature Conservation Committee, Peterborough.
- HYMAN, P.S. and PARSONS, M.S. 1994. *A review of the scarce and threatened Coleoptera of Great Britain. Part 2*. Joint Nature Conservation Committee, Peterborough.
- JONES, R.A. 1993a. Sycamore: an underrated pabulum for insects and some beetles associated with it. *Entomologist's Rec. J. Var.* **105**: 1–10.
- JONES, R.A. 1993b. The rhododendron lacebug, *Stephanitis rhododendri* Horvath, rediscovered in south-east London. *Br. J. Ent. nat. Hist.* **6**: 139–140.
- JONES, R.A. 1996a. *Cicones undatus* Guer.-Men. (Coleoptera: Colydiidae) still common under sycamore bark in south-east London. *Br. J. Ent. nat. Hist.* **9**: 91–92.
- JONES, R.A. 1996b. Some observations on *Agrilus sinuatus* (Ol.) and *A. pannonicus* (Pill. & Mitt.) in south-east London. *Br. J. Ent. nat. Hist.* **9**: 101–102.
- JONES, R.A. 1998. *Sydenham Hill Wood, Dulwich Wood and Cox's Walk: relic woodlands in south-east London*. Unpublished report for London Wildlife Trust.
- JONES, R.A. 2000. *The beetles of Sydenham Hill Wood, Dulwich Wood and Cox's Walk — indicators of ancient woodland*. Unpublished report for London Wildlife Trust.
- JONES, R.A. 2001. *Athous campyloides* (Elateridae) widespread in urban south London, and a note on its spread in England. *Coleopterist* **10**: 23–24.
- LOUSLEY, J.E. 1959. Dulwich Woods: relics of the Great North Wood. *Lond. Nat.* **38**: 77–90.
- LOUSLEY, J.E. 1960. Further notes on relics of the Great North Wood. *Lond. Nat.* **39**: 31–36.

- PLANT, C.W. 1987. *The butterflies of the London area*. London Natural History Society, London.
- RACKHAM, O. 1986. *A history of the countryside*. J.M. Dent & Sons, London.
- SHIRT, D.B. (ed.) 1987. *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough.
- STUBBS, A.E. 1982. Hoverflies as primary woodland indicators with reference to Wharncliffe Wood. *Sorby Rec.* **20**: 62–67.
- STUBBS, A.E. 1987. Hoverflies as indicator species. In Whiteley, D. (ed.), *Hoverflies of the Sheffield area and North Derbyshire*. *Sorby Rec. Special Series* **6**: 46–49.
- WHITE, J. and FRITH, M. 1996. *Cox's Walk: natural management into the millennium*. Unpublished report for London Wildlife Trust.

APPENDIX 1

Selective notes on other invertebrates recorded from the woods

Dermaptera

The ubiquitous earwig, *Forficula auricularia* L., was recorded throughout the woods and probably occurs in virtually every garden in the area.

Diptera (flies)

Three hundred and twenty-nine species were recorded, the majority by Godfrey (1988). As with the beetles, many had life-cycles specifically associated with old woodlands, breeding in rotten wood, fungi and leaf mould. Forty-seven families were represented, but only a few are specifically mentioned here. *Red Data Book* and nationally scarce (notable) statuses are based on those given by Shirt (1987) and Falk (1991a).

BOMBYLIDAE. Bee-flies, cuckoo parasitoids in the nests of soil-dwelling solitary bees. *Bombylius major* L., a widespread species, typical of woodlands and larger gardens, where it commonly visits primrose flowers.

CLUSIIDAE. Small flies thought to breed in rotting wood. As well as five common species, a single specimen of *Paraclusia tigrina* (Fallén) was identified by G.A. Collins from Malaise-trap material 6.viii–17.ix.1993. This uncommon species is given *Red Data Book* status 2 (vulnerable) and although its life history is unknown it is associated with ancient woods in southern England and probably breeds in fungoid wood.

CONOPIDAE. Small flies which parasitize bumblebees. *Conops ceriaeformis* Meig., two on 20.viii.1997; this widespread, but rather local fly, is the most common conopid in south-east London. *Leopoldius breviostris* (Germar), recorded twice by Godfrey (1988), this very rare fly is accorded *Red Data Book* status 2 (vulnerable) and is known from only a handful of other localities in Britain. It seems to be linked with ancient woodlands, although it is a parasitoid of social wasps, *Vespula* and *Dolichovespula* species, which are common and widespread and not necessarily associated with woods.

DROSOPHILIDAE. Minute flies which breed in decaying organic matter, including rotten fruit and fungus. Among several common species were *Leucophenga maculata* (Duf.), an uncommon species usually found near fungi or rotten wood, and *Stegana nigrothorax* (Strobl), a nationally scarce (notable) species, usually breeding under beech bark infected with *Hypoxylon* fungus, in the South-East.

EMPIDAE. Small to medium-sized predatory flies. Thirty-three species were recorded, including *Rhamphomyia anomalipennis* Meig., a rather local and scattered species.

MEGAMERIDAE. Medium-sized flies which breed in rotten wood. *Megamerina dolium* (Fab.), a very local fly associated with old woodlands, and which breeds under the bark of fungoid logs and stumps, nationally scarce (notable), several specimens, 1998 and 2000.

MYCETOPHILIDAE. Fungus gnats, small to minute flies which breed in fungus. Fifty-five species are given by Godfrey (1988), all identified by P.J. Chandler, an acknowledged expert in the group. Very little is known about their precise habits or distributions.

OTITIDAE. Small flies which breed in decaying vegetable matter. The rather local *Melieria crassipennis* (Fab.).

SCATHOPHAGIDAE. 'Dung' flies, mostly in animal dung, but also other life histories. Four common species, one of which was *Norellia spinipes* (Meig.), a leaf-mining species which attacks garden daffodils. First found in Britain in the 1960s, it has spread and is now quite widespread in the London area and south-east England. Originally listed as nationally scarce (notable), this status will have to be revised.

SCIOMYZIDAE. Small flies which parasitize snails. Five species including *Tetanura pallidiventris* (Fall.) a local species found in scattered woodland localities.

STRATIOMYIDAE. Soldier flies, small to large flies that breed in soil, dung, rotten wood or water. Ten species including *Chorisops nagatomii* Roz., a widespread, but rather local species, predominantly of woodlands. Although previously regarded as being nationally scarce (notable), this species has recently been found to be more widespread, particularly in the London area, and its status may need revision.

SYRPHIDAE. Hoverflies, small to large flies with varying life cycles, including aphid predators and scavengers, and others which breed in water or in dead wood. Several species are particularly associated with ancient woodlands and have been allocated indicator status by Stubbs (1982, 1987), similar to the beetle indicators discussed above. Sixty-two hoverflies were recorded, including the following interesting or woodland species. *Baccha elongata* (Fab.), a species of woodland undergrowth. *Brachyopa insensilis* Collin, a rather local species associated with sap runs on old trees, notably elms, and which has declined of late, indicator grade 3. *Chalcosyrphus nemorum* (Fab.), a rather local woodland species which breeds in rotten wood. *Dasysyrphus venustus* (Meig.), a local spring species mainly of southern woodlands. *Didea fasciata* Macq., a very local species of ancient broad-leaved woodlands, nationally scarce (notable), indicator grade 2. *Ferdinandea cuprea* (Scop.), a local woodland species which breeds in sap runs and rotten bark, indicator grade 3. *Melangyna triangulifera* (Zett.), an aphid predator usually associated with *Prunus* trees in woods, parks and gardens; originally accorded *Red Data Book* 3 status (rare), subsequently revised to nationally scarce (notable), indicator grade 2. *Neoascia obliqua* Coe, mainly a northern species associated with woodland edges. *Platycheirus ambiguus* (Fall.), a local species associated with spring blackthorn. *Platycheirus discimanus* Loew, a species of ancient broad-leaved woodlands, nationally scarce (notable), indicator grade 3. *Rhingia rostrata* (L.), a very uncommon species associated with ancient broad-leaved woodlands, originally given *Red Data Book* 2 (vulnerable) status, but subsequently revised to nationally scarce (notable), indicator grade 2. *Volucella inanis* (L.), a scavenger in wasp nests, not uncommon in the London area, nationally scarce (notable). *Volucella zonaria* (Poda) a scavenger in wasp nests, not uncommon in the London area, nationally scarce (notable). *Xyolta segnis* (L.), breeds in rotten wood.

TIPULIDAE. Craneflies, small to very large flies which breed in the soil or in rotten wood. Eighteen species including *Gnophomyia viridipennis* (Gimm.), a very local species that breeds in rotten wood, nationally scarce (notable).

XYLOMYIDAE. Small flies that breed in rotten wood. *Solva marginata* (Meig.), a very uncommon species seemingly associated with large old poplar trees and logs, originally accorded *Red Data Book* 3 status (rare), subsequently revised to nationally scarce (notable).

Hemiptera (true bugs)

Thirty-one species in twelve families were recorded. Some are associated with trees and shrubs, but few have any real association with ancient woodland. Only one particularly noteworthy species was found.

CICADELLIDAE. Leafhoppers, small sap-sucking bugs. Three species including *Placotettix taeniatrifrons* (Kirsch.) on rhododendrons, 20.viii.1997. This very local species was introduced into Britain from the Mediterranean in the middle of the twentieth century. It is known from only a few localities, but several sites in south London (Jones 1993b).

Hymenoptera (bees, wasps, ants, etc.)

One hundred and five species were recorded. Only a few are particularly associated with woodlands, most preferring grassy, heathy or other open habitats. Much of this species list was compiled by Jim Brock, keeper of entomology at the nearby Horniman Museum (Ichneumonidae especially), John White, the London Wildlife Trust's warden of Sydenham Hill Wood (Formicidae especially) and David Baldock, Surrey Aculeate recorder (various Aculeate families). Notable statuses are based on those given by Falk (1991b).

CHRYSIDIDAE. Rubytails, small cuckoo parasitoid wasps. *Omalus aeneus* (Fab.), two swept, 8.vii.1997, a widespread but local species which parasitizes stem- and wood-nesting solitary wasps. *Omalus violaceus* (Scop.), one running on large beech logs, 20.viii.1997, a very local species of south-east England which parasitizes stem- and wood-nesting solitary wasps, nationally scarce (notable).

ICHNEUMONIDAE. Minute to very large parasitoids of insects and spiders. This is a very difficult and under-recorded group, and little is known about their distribution, life cycles or behaviour. A list of thirty-one species included: *Cratichneumon corruscator* (L.), *C. fabricator* (Fab.), *C. rufifrons* (Grav.) and *C. varipes* (Grav.), all parasitoids of the pupae of winter moth and other moth species which eat oak leaves; *Hoplismenus bidentatus* (Gmel.) an uncommon parasitoid of nymphalid butterflies, and *Zatypota albicoxa* (Walk.) an uncommon parasitoid of spiders and their egg cocoons.

SPHECIDAE. Small to large solitary wasps, predators and flower visitors. Twenty-eight species, mostly small common ones, but also including the following unusual species. *Crossocerus dimidiatus* (Fab.), in Malaise-trap material, 1993, a local species, apparently the first 'Surrey' record (J. Baldock, personal communication). *Crossocerus distinguendus*, a small black species probably recently established in Britain, nationally scarce (notable A). *Psenulus schencki*, a rare species that nests in holes in stems and dead wood, nationally rare (*Red Data Book 3*). *Spilomena differens*, a scarce species which nests in old beetle holes in dead wood. *Crossocerus tarsatus* (Shuck.), *Ectemnius lituratus* (Panz.), *Psen dahlbohmi* (Wesm.), *Psenulus concolor* (Dahl.), and *Stigmus solskyi* Mor., all local species. *Stigmus pendulus* (Panzer), two specimens identified by D.W. Baldock from Malaise-trap material, 20.vi.1993, 30.viii.1993. First discovered in Britain in 1986, this species was given *Red Data Book* status K (insufficiently known) and was then known from only a few specimens taken in Essex and Kent. It is probably a recent arrival in Britain, and is now known to be fairly widespread in Surrey. It is associated with dead twigs, branches and dead wood.

FORMICIDAE. Ants. Eight species including *Lasius brunneus* (Latr.), many colonies in Cox's Walk and under logs in Sydenham Hill Wood, nationally scarce (notable A). Although mainly recorded in ancient woodland in central England (Surrey, Hertfordshire, Buckinghamshire, etc.) and the Severn Valley, it is not uncommon in south-east London in various woodland remnants now surrounded by urban growth.

Lepidoptera (1 — butterflies)

Eighteen butterfly species were recorded, mainly by John White and Mathew Frith of the London Wildlife Trust.

HESPERIIDAE. Skippers. *Ochlodes venata* (Brem. & Grey) the large skipper and *Thymelicus lineola* (Ochs.) small skipper.

LYCAENIDAE. Blues. *Celastrina argiolus* (L.) holly blue, *Polyommatus icarus* (Rott.) common blue and *Quercusia quercus* (L.) purple hairstreak. The last is a true woodland species, feeding on oak; although generally uncommon, it is the commonest hairstreak in the London area (Plant 1987).

NYMPHALIDAE. Fritillaries, admirals, browns, etc. *Aglais urticae* (L.) small tortoiseshell, *Argynnis paphia* (L.) silver-washed fritillary, a very local species breeding on woodland violets, *Cynthia cardui* (L.) painted lady, *Inachis io* (L.) peacock, *Maniola jurtina* (L.) meadow brown, *Pararge aegeria* (L.) speckled wood, *Polygonia c-album* (L.) comma, *Vanessa atalanta* (L.) red admiral.

PIERIDAE. Cabbage whites. *Anthocharis cardamines* (L.) orange-tip, *Gonepteryx rhamni* (L.) brimstone, *Pieris brassicae* (L.) large white, *Pieris napi* (L.) green-veined white, *Pieris rapae* (L.) small white.

Lepidoptera (2 — moths)

Thirty-one species were recorded by various visitors to the woods.

ARCTIIDAE. Tiger moths. *Arctia caja* L., the very common garden tiger.

GEOMETRIDAE. 'Geometer' moths. Ten common species including: *Erannis defoliaria* Clerck mottled umber, *Jodis lactearia* L. little emerald, *Odontopera bidentata* Clerck scalloped hazel, *Odontophthera brumata* L. winter moth, *Selenia dentaria* (Fab.) early thorn and *S. tetalemia* Hufn. purple thorn.

NOCTUIDAE. 'Noctuid' moths. Fifteen species including: *Conistra vaccinii* L. chestnut, *Orthosia stabilis* Den. & Schiff. common quaker, and *Polia nebulosa* Hufn. grey arches.

NOTODONTIDAE. Prominents. *Pheosia tremula* Clerck swallow prominent.

PSYCHIDAE. Bagworms. The common *Psyche casta* (Pall.).

PYRALIDAE. 'Pyralid' moths. *Phycita roborella* (Den. & Schiff.) and *Pleuroptya ruralis* (Scop.).

SPHINGIDAE. Hawkmoths. *Laothoe populi* L. poplar hawkmoth.

Odonata (dragonflies and damselflies)

Four species were recorded, though probably none breeding in the small over-shadowed pond. Woodlands are not ideal habitats for dragonflies, but large far-flying species make use of hedges, rides and woodland edges for their hawking patrols.

AESHNIDAE. Hawker dragonflies. The common *Aeshna cyanea* (Müller).

LIBELLULIDAE. Chaser and darter dragonflies. Three common species: *Libellula depressa* L., *Libellula quadrimaculata* L. and *Sympetrum striolatum* (Charp.).

Orthoptera (grasshoppers and bush-crickets)

Only a single species was recorded. It is likely that several common woodland species have been overlooked.

ACRIDIDAE. Grasshoppers. The common *Chortippus brunneus* (Thunb.).

Araneae (spiders)

Forty-seven species are recorded, mainly in a list and commentary attributed to Peter Harvey. Hardly any of these are specialist woodland spiders. Noteworthy species included the following:

LINYPHIIDAE. 'Money' spiders. Twenty-seven species were recorded including *Lepthyphantes mengei* Kulcz., *Walckenaeria cucullata* (C.L. Koch) and *W. furcillata* (Menge), all three widespread but local and apparently new to the London area.

NESTICIDAE. *Nesticus cellulanus* (Clerck). A local species of damp woodland.

THERIDIIDAE. *Anelosimus vittatus* (C.L. Koch), a local, mainly southern species.

THOMISIDAE. Crab spiders. *Philodromus dispar* Walck., stated as apparently new to the London area.

Opiliones (harvestmen)

Two common species were recorded.

NEMASTOMATIDAE. *Nemastoma bimaculatum* (Fab.).

PHALANGIIDAE. *Leiobunum rotundum* (Lat.).

Pseudoscorpiones (false scorpions)

A single common species was recorded.

CHTHONIIDAE. *Chthonius ischnocheles* (Herm.) under bark.

Isopoda (woodlice)

Five common species were recorded.

Chilopoda (centipedes)

Four common species are recorded in a list by G.B. Corbet from a field visit in 1989 and held at the Horniman Museum.

Diplopoda (millipedes)

Seven species are recorded in a list by G.B. Corbet from a field visit in 1989 and held at the Horniman Museum. Two noteworthy species are included.

BLANIULIDAE. Two species including *Archiboreoilusus pallidus* (Brade-Birks), a scarce species mainly associated with calcareous soils and not previously found in the London area.

JULIDAE. Three species including *Cylindroiulus londinensis* (Leach), nationally uncommon, but frequent in south-east London.

Mollusca (slugs and snails)

Six common species are recorded in a list by G.B. Corbet from a field visit in 1989 and held at the Horniman Museum.

APPENDIX 2

Rationale for Nationally Scarce and Nationally Rare statuses

The criteria for according nationally scarce (notable) and nationally rare (*Red Data Book*) statuses are several and complex, but this summary is abbreviated from Hyman and Parsons (1992) etc.

- **Endangered** (*Red Data Book* 1, RDB1). The rarest taxa. Taxa in danger of extinction in Great Britain; species with very few recorded localities or living in especially vulnerable habitats.
- **Vulnerable** (*Red Data Book* 2, RDB2). Very rare species. Taxa likely to move into the RDB1 category; species declining in their range.
- **Rare** (*Red Data Book* 3, RDB3). Rare species. Taxa with small populations and which are at risk; species estimated to occur in 15 or fewer of the 10-km squares in the Ordnance Survey National Grid since 1970.
- **Nationally scarce** (notable A, Na). Very local species, thought to occur in 16 to 30 of the 10-km squares of the Ordnance Survey National Grid since 1970.
- **Nationally scarce** (notable B, Nb). Very local species, thought to occur in 31 to 100 of the 10-km squares of the Ordnance Survey National Grid since 1970.
- **Nationally scarce** (notable, N) status is sometimes not subdivided into categories A and B (species thought to occur in 16 to 100 10-km squares).

***Macaroeris nidicolens* (Simon), a jumping spider new to Britain discovered at Mile End Park, east London**

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During the London Natural History Society's spider foray to Mile End Millennium Park in the East End of London (and within the old county of London) on Sunday 12 May 2002, a number of specimens of an unfamiliar salticid were swept from young pine trees. Most of the specimens were juveniles but one appeared to be an adult or subadult female, although the epigyne was not very well defined. The spiders were quite strongly built and fairly similar in appearance to *Marpissa muscosa* although a little smaller and distinctively marked in reddish-brown. Being unable to identify them I sent all the specimens to Peter Harvey who, after consultation with John Murphy, expressed the view that they were not a British species, but that an adult male would be needed for a conclusive identification. Among the other specimens obtained on the foray was an adult male of *Misumena vatia*, surprisingly a new record for the county of London.

I revisited the park on 2 June to try to find males, and carefully swept the lower branches of all the groups of small pine trees which have been planted on both sides of the 'green bridge'. This resulted in the capture of several further specimens; adults of both sexes and some juveniles, from four separate groups of trees. Sweeping of other vegetation in the park, such as tall herbs, bushes and the lower branches of other trees, did not produce any further specimens, although an adult male *Theridion pinastri* was obtained from the pine trees, this also being the first record of the species for the county of London.

The new specimens of the unidentified salticid were sent to Peter Harvey and thence to Peter Merrett and John Murphy who subsequently confirmed the identity as *Macaroeris nidicolens* (Simon, 1914). This is a fairly widespread species of southern and central Europe, and closely related to a large genus of Continental jumping spiders, *Dendryphantes*. *M. nidicolens* has been recorded from France, Belgium, Germany, Austria, Czech Republic, Slovakia, Hungary as well as around the Mediterranean. The typical habitat is on the branches and trunks of trees, especially pines, according to Roberts (1995) who provides illustrations of the species under the name *Eris nidicolens*.

Further enquiries at Mile End Park revealed that the pine trees, mostly *Pinus nigra*, had been planted in November 1998 and had been obtained from Hilliers' Nursery in Hampshire. How and when the spiders colonized these trees is not known, and so far no search has been made of pine trees at Hilliers' Nursery. This find may possibly be further evidence of global warming but the spider could have reached the London area from France and Belgium and become established without climate change. So far searches of small pines in other London parks (Holloway Road, Hampstead Heath, etc.) have failed to produce further specimens of *Macaroeris nidicolens*.

Peter Harvey (pers. comm.) has pointed out that the illustration of the epigyne in Roberts (1995) does not closely resemble the females found at Mile End Park, and recommends the illustrations on the website <http://spiders.arizona.edu/salticid/CATALOG/>

Reference

- ROBERTS, M. J. 1995. *Collins Field Guide. Spiders of Britain & northern Europe*. HarperCollins, London.

Book reviews

Chris Packham's back garden nature reserve. New Holland Publishers in association with The Wildlife Trusts. 2001. 144 pp., A4 hardback. Numerous coloured illustrations, coloured cover and matching dust jacket. £14.99, ISBN 1 85974 943 7.

The garden bird year. A seasonal guide to enjoying the birds in your garden. Roy Beddard. New Holland Publishers. 2001. 128 pp., approx. A4 hardback. Numerous coloured illustrations, coloured cover and matching dust jacket. £14.99. ISBN 1 85974. 655 1.

These two titles complement each other admirably. As naturalists we are (or should be) interested in all aspects of nature. There is nothing more satisfying than attracting birds to the garden and watching their habits and behaviour, even though admittedly, when several birds of several species start fighting over peanuts, it is a little exasperating. Some say we shouldn't feed birds in gardens as the very positioning of the food and bird-tables can often provide an easy hunting patch for the local sparrowhawk or merlin — but then, what's more beautiful than a merlin? Which reminds me of when, many years ago at the St Agnes Bird Observatory, I was walking back from the quay having collected mail and bread, and I saw we had just caught a robin in one of the portable traps. I returned quickly with rings and to my astonishment the robin had been replaced by a male merlin — which I ringed instead! And that brings me to **Chris Packham's** book. In nature everything has its place in the food chain. In his inimitable way Chris puts the case for everything to have its rightful place (where appropriate, considering the varying sizes and locations of back gardens) in your garden as an extension of or replacement for the many natural habitats which are so rapidly disappearing.

Every chapter gives food for thought, and he gives balanced views on so many of the popular misconceptions that uninformed blinkered people have when they see only what they think is happening. Like myself, Chris likes magpies, 'the all-round-bad guy of the bird world: the wonderful magpie!'. He has a page entitled 'Saving Private Slug — the truth about garden warfare'. The whole book is a delight to read — birds, mammals, invertebrates (including minibeasts and attracting moths by light), ponds, plants, photography, and 'After thoughts' — 'Cats — the not-so-phantom menace' and 'Cats the not-so-final solution'. Good stuff!

The garden bird year will be of great interest to both gardener and birdwatcher. No matter how small your garden is you can always do something to attract birds throughout the seasons. There is good advice on locating feeding sites so that acknowledged predators like cats and magpies can be less of a problem at times.

Both books are crammed with well-researched text, and as I said in the opening sentence, they complement each other. Buy them both. They are a good read and very well illustrated.

K.H. HYATT

The moths of Devon. An account of the pyralid, plume and macromoths of Devon. Roy McCormick. 2001. Privately published by the author at 36 Paradise Road, Teignmouth, Devon TQ14 8NR. £25 + £3.40 p.& p. 328 pp. Hardback glossy illustrated cover. ISBN 09540256 1 X.

In recent years many county faunas and floras have been published. Some in the form of distribution atlases, others listing records and commenting on the distributions. The present work falls into the latter category. Roy McCormick came to live in Devon in 1993 and became county recorder for moths in 1995. Previously he had been living in the London area and contributed records to our *Larger moths of the London Area* (1993).

Following the Introduction we have sections which include Geology and landscape, with a geological map of the county showing the main features, Climate and weather, Conservation — a short history, Land use, and Migration. The bulk of the book is, of course, the Systematic part, and this is followed by a complete listing of all the 700-plus localities referred to together with their grid references. There is also a dot map showing all the one-kilometre squares from which records have been received. The book ends with a section of twenty-four colour photographs of localities and twenty-four of moths.

Much work has gone into compiling this book and it should form a firm foundation and stimulus for further recording in Devon.

K.H. HYATT

Spider records for 2001 for the counties of London and Middlesex

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Abstract

New and interesting spider records for the counties of London and Middlesex in 2001 are detailed. There was one new record for London and three new records for Middlesex.

Introduction

During 2001 collecting by the writer was somewhat restricted although pitfall trapping at Queen's Wood has continued for the thirteenth consecutive year. In May nearly a dozen members undertook a spider foray to Oakhill and Brunswick Parks, and in December a second foray to Kensal Green Cemetery. The writer made several visits to Harmondsworth Moor (London Borough of Hillingdon) and conducted some limited pitfall trapping there. It appears that prior to this there had not been any recording of spiders from this large (though substantially altered) site on the banks of the Colne and Wraysbury rivers. The writer also made an intensive study of the large orb-web spiders on the Ladies' Swimming Pool Meadow on Hampstead Heath which resulted in some new records for the Heath, and in November the grassland monitoring was restarted following the appointment of new managers on Hampstead Heath.

In 2001 a total of 149 species was recorded in the two counties of London and Middlesex, of which one (marked * below) was new to London and three were new to Middlesex (marked ** below).

Nomenclature and the new order in the list of families are according to the recently published checklist (Merrett and Murphy 2000).

THERIDIIDAE

Theridion pinastri. ** This widely distributed European spider was not known in Britain until 1977 when a single male was found by J. and F. Murphy in Surrey (Roberts 1985). Since then it has been recorded from a number of places in the south-east of Britain including several places in Essex. A single male was swept from patches of tall herbs near the edge of the River Colne at Harmondsworth Moor in June.

LINYPHIIDAE

Walckenaeria vigilax. ** Numerous specimens of both sexes of this black-and-red money spider were trapped at several places on Harmondsworth Moor in July and August suggesting that it is fairly common there, although this was the first recorded site in Middlesex.

Hylyphantes graminicola. Previously recorded in Middlesex only from vegetation surrounding Stockers Lake further north in the Colne Valley, a single male was swept from nettles on the banks of the Colne at Harmondsworth Moor in July.

Oedothorax agrestis. This relatively scarce species of *Oedothorax* has previously been recorded in Middlesex only from West Heath, Hampstead, and from Perivale Wood. In 2001, a single male was trapped at Harmondsworth Moor in a damp area near the River Colne in August.

Prinerigone vagans. This marshland spider, referred to by Savory (Savory and Le Gros 1957: 48) as 'the outstanding London spider' (even though the record he was referring to was actually from Middlesex not London) has been found from several wet areas around London but only three previous sites in Middlesex. Several male specimens were trapped at Harmondsworth Moor during 2001 in both July and August.

Kaestneria pullata. This spider, like the previous species, has only been recorded previously from three Middlesex sites, mainly in woodland. During 2001 a single female specimen was trapped at Harmondsworth Moor in August.

TETRAGNATHIDAE

Metellina merianae. After twelve years of pitfall trapping and collecting in Queen's Wood, a single female was trapped in a patch of ivy in July 2001, a new record for the wood. This spider inhabits culverts and dark wet places to spin its orb web; in Scotland it can often be found in old peat cuttings. In the London area it has been found occasionally in dark places in a number of woods such as at Alexandra Park, Perivale Wood, etc.

ARANEIDAE

Neoscona adianta. * As reported last year, this attractively marked orb-web spider has been recorded several times in Middlesex, though not previously in London. At last, in September 2001 the first specimens were taken in the county of London during the writer's concentrated study of the large orb-webs on the Ladies' Swimming Pool Meadow on Hampstead Heath. The specimens of *N. adianta* were found on webs in the central area of the meadow where the vegetation is dominated by garden iris, *Juncus* spp. and creeping thistle *Cirsium arvense*. Was it there all along? The writer's view is that the answer is probably no, partly because the area has been swept and investigated in most recent years at about the same time (September/October) to look for *Araneus quadratus*, but also because the presence of newly arriving species in this particular area is to be expected as, due to the complete cessation of mowing, the ecological characteristics of the meadow have changed. *N. adianta* may have arrived from overgrown private gardens in the area for example. Disturbance in the areas of tall herbs on the Ladies' Swimming Pool Meadow is now low and has been for several years, and this year other spiders were found here for the first time such as *Cheiracanthium erraticum*, *Larinioides cornutus* and *Agalenatea redii*. Other indications of the changing characteristics of the meadow are the presence of newly established anthills in some areas, the establishment of substantial areas of emergent herbs (sown in the meadow some years ago), and the beginnings of development of substantial grass tussocks. These latter have no direct relevance to the presence of *N. adianta* but are indicative of the general changes in the habitat.

Larinioides cornutus. After many years of searching this common orb-web spider was finally found this year on Hampstead Heath, during the writer's survey of the Ladies' Swimming Pool Meadow when numerous adult females and juveniles were found. This is only the second site in the county of London. Whether it was present in very small numbers before is not known, but as the meadow has been searched on many occasions before and this spider not found it must be assumed that it arrived recently (possibly from large gardens in Highgate near the Heath) to take advantage of the improved habitat (see above).

Larinioides sclopetarius. A single female of this relatively uncommon orb-web spider was found at Mile End Park in Hackney. It has been recorded from just three other sites in the old county of London.

Agalenatea redii.★ The first record for London of this attractive small orb-web spider was from the Ladies' Swimming Pool Meadow in September when a number of females were found on their small orb webs among tall herbs.

Zilla diodia. A single female of this orb-web spider was swept from bushes at Greenwich Park in June. The only previous record in the (old) county of London was from Buckingham Palace Garden, although this may have been imported on garden shrubs (Milner 1999).

LYCOSIDAE

Pirata hygrophilus and *P. latitans*. Several specimens of both these rather uncommon wolf spiders were trapped at Harmondsworth Moor in July and August. For *P. latitans* this was only the second recorded site in Middlesex. At Harmondsworth Moor the habitat was damp grassland bordering the Colne and Wraysbury rivers subjected to occasional flooding.

AGELENIDAE

Agelena labyrinthica. A single female was trapped at Harmondsworth Moor in June although limited searching had not revealed any of the characteristic webs. This species is likely to have fairly limited scope at the site because of the general disturbance level and the number of dogs exercising and probably damaging any webs in long grass. Indeed its distribution in the London area leads to the conclusion that it is a very good indicator of undisturbed or less disturbed grassland.

DICTYNIDAE

Dictyna latens.★ A single male subadult specimen (P. Merrett, pers. comm.) was found by the author during a single visit to the rather overgrown private areas near the Wilderness in Greenwich Park in June. Unfortunately, due to the foot-and-mouth restrictions in force at the time it was not possible to enter the Wilderness itself where there are deer. It is hoped that further visits may be made in the coming year with the help of the Friends of Greenwich Park.

Lathys humilis. In the twelfth year of pitfall trapping in Queen's Wood a single male was taken. It is a new record for the wood. This species is usually found in bushes and dense vegetation and is not often taken in pitfalls but it is surprising that it has never been taken before at Queen's Wood as it is now a well-collected site and both the writer and Dan Hackett have made a number of searches using sweepnets over the past few years yet had not previously seen this species there.

Argenna subnigra.★★ Several male specimens of this uncommon species were taken in pitfall traps on dry grassy areas at Harmondsworth Heath in July and August.

GNAPHOSIDAE

Zelotes apricorum. Two females of this ant-hunting spider were found under fallen gravestones in Camden and Islington Cemetery during a fungus foray in late October. The only other Middlesex record is from the adjacent Coldfall Wood and it has not been recorded from the county of London. In the London area this genus is usually represented by the much more widespread *Z. latreillei*.

Drassyllus pusillus. This uncommon gnaphosid was trapped at Harmondsworth Moor in July, this only being the second recorded locality for Middlesex, although it has also been found at Brunswick Park in Southgate a few metres over the border of Hertfordshire.

THOMISIDAE

Xysticus kochi. A single female of this locally uncommon crab-spider was trapped at Harmondsworth Moor in July. It is probably under-recorded in Middlesex as it is easy to confuse with *X. cristatus*.

SALTICIDAE

Ballus chalybeius. This uncommon jumping spider was trapped under oak and hornbeam at Queen's Wood in July. It is only the second record for Middlesex, and another new record for the wood. As the only previous record in the London area was from Oxleas Wood, it can probably be taken as further evidence of the ancient woodland characteristics of Queen's Wood.

Talavera aequipes.** Both sexes of this tiny jumping spider were trapped at Harmondsworth Moor in June and July (male) in a typical dry gravelly habitat with incomplete grass cover. Surprisingly this appears to be a new record for Middlesex although this attractive species is known from four sites in the county of London.

Acknowledgements

I wish to thank Peter Merrett for identifying or confirming the identity of most of the species referred to.

References

- MERRETT, P. and MURPHY, J. A. 2000. A revised check list of British spiders. *Bull. Br. arachnol. Soc.* **11** (9): 345–358.
- MILNER, J. E. 1999. Spiders and other Arachnida in Buckingham Palace Garden. In Plant, C. W. (ed.), *The Natural History of Buckingham Palace Garden*, London. Part 1. *Lond. Nat.* **78** (Suppl.): 87–101.
- ROBERTS, M. J. 1985. *The spiders of Great Britain and Ireland*. **1**. Harley Books, Colchester.
- SAVORY, T. H. and LE GROS, A.E. 1957. The Arachnida of London. *Lond. Nat.* **36**: 41–50.

London butterfly monitoring report for 2001

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Abstract

Butterflies were monitored by the use of transect walks at twenty-five sites in London during 2001. Data from these transects were used in the calculation of collated indices. Thirty-two species of butterfly were recorded, most in lower numbers than in 2000.

Introduction

This paper describes changes in the abundance of butterflies in London in 2001 as compared with previous years, primarily using data from sites where butterflies are monitored. London is defined for the purposes of this paper as the area encompassed by the London boroughs, though additional records from the wider London Natural History Society (LNHS) recording area are noted where appropriate. Butterflies were monitored using a method that is widely adopted throughout the United Kingdom. As the same method is used at each site, and from year to year, it is possible to collate the data to produce indices of change for butterfly species across a series of sites or of a geographic area. Indices can also highlight divergent changes in abundance of species at individual sites in comparison with regional trends. A brief description of this system in London and the calculation of collated indices was provided by Williams (2000).

Methods

Monitoring was undertaken by the transect walk method, a standard method adopted at several hundred sites in the United Kingdom. Details of the method have not been repeated here as they are described elsewhere (see Pollard and Yates 1993, and Williams 2000 and the references cited therein). At each site a walk was undertaken along the same route, each week, between April and September inclusive, within a standard range of weather conditions conducive to butterfly flight. Counts were made of the number of adult butterflies observed to provide a total for each species for the year at each transect. Totals used for this paper include calculated estimates for weeks missed due to poor weather or the unavailability of the recorders. Collation of the data from the transects in London was undertaken as described by Williams (2000), but see also Crawford (1991) for an introduction to the use of collated indices in wildlife monitoring, and Pollard and Yates (1993). Note that collated indices are not absolute counts of the population (nor are the original site counts), but indices of abundance. The indices are relative from year to year, not from species to species.

Twenty-five transects were walked in London in 2001 and have been included in the calculation of the indices. Each transect is briefly described below. Transect recorders are listed in the Acknowledgements. The borough in which the transect is located is given in parentheses. The years listed refer to the years for which there are usable data:

Hampstead Heath (Camden) 1978–2001; **Fryent Country Park** (Brent) 1986–2001; **Beane Hill** (Brent) 1988–2001; **Gutteridge Wood** (Hillingdon) 1990–2001; four transects managed by the Corporation of London and located

in the London Borough of Croydon: **Coulsdon Common** 1990–2001, **Farthing Downs and Happy Valley NW** 1990–2001, **Kenley Common** 1990–2001, **Riddlesdown** 1990–2001; **Clifford Road Allotments/New Barnet Allotments** (Barnet) 1994–1995, 1997–2001; **Mitcham Common ‘route A’** (Merton) 1994–2001; **Mitcham Common ‘route B’** (Merton) 1995–2001; **Forty Hill** (Enfield) 1996–2001; **Wandsworth Common Woodland** (Wandsworth) 1996–2001; **Railway Fields** (Haringey) 1997–2001; **Cranford Park** (Hounslow) 1997–2001; **Hutchinson’s Bank Nature Reserve** (Croydon) 1997–2001; **South Norwood Country Park** (Croydon/Bromley) 1998–2001; **Trent Country Park** (Enfield) 1998–2001; **Tower Hamlets Cemetery Park** (Tower Hamlets) 1999–2001; **Abney Park Cemetery** (Hackney) 1999–2001; **Gunnersbury Triangle** (Hounslow) 1999–2001; **Roxborough Rough** (Harrow) 1999, 2001; **Brent Reservoir** (Barnet/Brent) 2000–2001; **Elthorne Waterside** (Ealing) 2000–2001, **Featherbed Lane Verge/The Gallops** (Croydon) 2000–2001.

Three additional transects have not been included in the index at this stage: Hounslow Heath and Cranebank, both in Hounslow, and a new transect alongside the Regent’s Canal in the vicinity of Mile End. Records from these transects, and from casual records by LNHS observers, have been included in the species accounts where appropriate. The policy adopted by Plant (1999) is continued, in that the London Natural History Society works with the county branches of Butterfly Conservation in and around London for the effective use of butterfly records and transect data.

Results

Collated indices for each species were calculated and for 1990 to 2001 are presented in Table 1. The order and nomenclature follow Asher et al. (2001). Estimates of the relative changes in the populations of each species from year to year are given by the difference in the numerical figures. For example, a butterfly with an index of 50 in one year and 25 in the following year would have been seen in half the numbers in the second year as compared with the first year. Indices have been rounded to the nearest whole number and have usually been set at 100 in 1990 or the first year of record: for a technical discussion see Crawford (1991). Reliability of the indices increases with the number of transects: one transect was walked in 1978, two in 1986, three in 1988, eight in 1990, and 25 in 2001. Reliability of the indices may be lower for species with low counts. The indices in Table 1 have been recalculated to take into account data for earlier years that became available for some transects, and the revision by the Surrey Branch of Butterfly Conservation of estimated counts for ‘missing weeks’.

Species accounts are presented below. Where comment mentions transects with relatively high counts, this is from the 25 transects in the index and should be taken as indicative only, as transects differ in length between sites. The ‘total count’ for a species gives an indication of the size of the count including estimated counts for missing weeks, from the transects from which the indices were calculated.

SMALL SKIPPER *Thymelicus sylvestris* and **ESSEX SKIPPER** *Thymelicus lineola*
The small and the Essex skippers are generally counted together by the transect walkers, due to the difficulty of separating these species in flight. At least one of these two species was recorded on each transect except Forty Hill in 2001. The index was slightly higher than in 2000. The highest count was at Cranford Park where the count of 686 had increased from 175 in 2000. Relatively large populations were recorded at Mitcham Common and Roxborough Rough. At nine of the 25 transects, attempts were made to identify a sample of the two species separately. Of a combined sample of 378 individuals, 59 per cent were small skippers and 41 per cent were Essex skippers. Small skippers were the more common species at most of those sites, except for Roxborough Rough where the Essex skipper predominated. Total count: 2,466.

TABLE 1. Collated indices for butterfly species in London, 1990–2001. Indices have been rounded to the nearest whole number and have usually been set at 100 in 1990 or the first year of record, though indices may be set at 100 in other years where this aids interpretation. A blank indicates no transect records for that species in that year. A zero implies that that species was not observed on transects in that year. A question mark indicates that a species was present in that year, but that data for subsequent years and/or for more transect sites are required before the calculations can be completed. See the text for further information.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Small and Essex skippers												
Large skipper	100	257	266	78	252	118	183	170	94	105	92	113
Dingy skipper	100	62	237	211	205	136	65	64	42	56	56	44
Grizzled skipper	?	?	?	?	?	?	?	100	58	51	61	32
Clouded yellow								100	23	63	24	14
Brimstone	100	132	179	118	74	124	100	0	22	0	862	0
Large white	100	84	575	83	116	138	119	102	89	89	137	92
Small white	100	165	290	73	120	248	34	127	278	121	134	117
Green-veined white	100	53	233	83	72	145	116	329	164	98	148	131
Orange-tip	100	145	121	87	36	72	68	147	191	94	104	70
Green hairstreak			100	100	0	100	40	87	65	48	75	60
Purple hairstreak			100	200	141	205	50	73	36	18	15	58
White-letter hairstreak			100	50	0	50	137	326	480	508	492	313
Small copper	100	37	20	10	38	59	62	93	39	18	19	41
Small blue					?	?	?	63	52	23	12	3
Brown argus	100	136	79	18	60	95	77	100	225	175	188	338
Common blue	100	100	46	24	91	144	69	103	11	12	20	5
Chalkhill blue	100	117	54	12	91	109	109	85	42	65	54	32
Holly blue	300	21	7	4	4	87	122	288	75	180	90	80
White admiral								27	66	36	43	53
Red admiral	100	57	229	93	127	326	201	100	100	0	0	0
Painted lady	100	17	58	0	8	12	888	91	139	126	277	203
Small tortoiseshell	100	150	1,091	474	180	300	130	14	4	6	49	4
Peacock	100	249	986	1,124	483	568	792	292	165	143	64	30
Comma	100	82	379	107	106	144	109	804	1,107	1,129	1,483	1,089
Dark green fritillary								123	120	115	206	158
Silver-washed fritillary								100	148	181	63	7
Speckled wood	100	97	161	171	228	153	74	126	148	100	300	100
Wall brown	100	13	3	3	2	1	0	0	0	0	0	0
Marbled white							100	127	78	68	56	21
Gatekeeper	100	97	132	80	87	129	156	160	127	183	219	209
Meadow brown	100	197	125	54	90	105	137	115	162	148	147	93
Ringlet	100	222	304	180	310	194	64	223	294	351	505	255
Small heath	100	94	42	10	5	6	22	29	22	9	5	2

LARGE SKIPPER *Ochlodes venata*

The index for the large skipper was lower than in 2000 and continues a series of poor years as compared with the majority of years from 1986 to 1995. The highest count was at Wandsworth Common, and there was a large improvement at Cranford Park. Total count: 360.

DINGY SKIPPER *Erynnis tages*

The dingy skipper was recorded on three of the downland transect sites in south London. The index declined compared with 2000. Total count: 27.

GRIZZLED SKIPPER *Pyrgus malvae*

The grizzled skipper has a distribution restricted to downland sites on the southern edge of London, and in 2001, to one transect in the index. Though the data are too few for a reliable index, numbers were lower than in 2000. Total count: 4.

BRIMSTONE *Gonepteryx rhamni*

The index declined. Recorded on almost all transects, the highest count was at Farthing Downs and then at Hutchinson's Bank Nature Reserve, both on the southern edge of London. At Tower Hamlets Cemetery Park the count increased from 22 in 2000 to 42 in 2001, and this represents a high population for an inner London transect. Other evidence for a recolonization of London includes that from Hampstead Heath where the brimstone was not recorded on the transects from 1978 until the first record in 1993, but has been recorded on the transect in each year since 1995. Away from the transects, a female was observed at Trent Park on 12 October 2001. Total count: 401.

LARGE WHITE *Pieris brassicae*

The large white was recorded on all transects. The index was lower than in 2000 and the highest count was at Tower Hamlets Cemetery Park. Total count: 761.

SMALL WHITE *Pieris rapae*

The index declined slightly as compared with 2000. Small whites were recorded on all transects and the highest counts were at Tower Hamlets Cemetery Park and then at South Norwood Country Park. Small whites represented the majority of all butterflies at a new transect along the Regent's Canal in the vicinity of Mile End Park and Victoria Park. Away from the transects, a small white was recorded on Mitcham Common on 1 November 2001. Total count: 1,274.

GREEN-VEINED WHITE *Pieris napi*

Green-veined whites were recorded on each transect in 2001. The index declined as compared with 2000. The highest count was at Tower Hamlets Cemetery Park. Total count: 1,165.

ORANGE-TIP *Anthocharis cardamines*

The orange-tip was recorded on all but one transect in 2001. The index was lower than in 2000. The highest count was at Abney Park Cemetery, and then at South Norwood Country Park and the Brent Reservoir. Total count: 276.

GREEN HAIRSTREAK *Callophrys rubi*

The green hairstreak was recorded from three transects in the south of London in 2001. Though data are too few to estimate a reliable index, numbers increased as compared with 2000 particularly at Hutchinson's Bank Nature Reserve. Away from the transects, small numbers of green hairstreaks were recorded at Mitcham Common from where it was also observed in 2000. Total count: 12.

PURPLE HAIRSTREAK *Neozephyrus quercus*

The index for the purple hairstreak was lower than in 2000. Recorded from eight transects, the highest count was at the Brent Reservoir. Total count: 30.

WHITE-LETTER HAIRSTREAK *Satyrrium w-album*

The index increased as compared with 2000, though the count is small. Recorded on four transects, the majority of records were from Abney Park Cemetery, the other transects being Coulsdon Common, Wandsworth Common Woodland and Trent Country Park. Away from the transects the species was observed at Mitcham Common, Trent Park, Dagenham Chase Nature Reserve, and Cannon Hill Common in Merton. Total count: 7.

SMALL COPPER *Lycaena phlaeas*

The small copper continued to decline in London, to approximately a quarter that of 2000 and to about a thirtieth that of 1990. The small copper was recorded on nine of the transects, whereas the species was almost ubiquitous at transect sites in London until the mid 1990s. The highest count was at Trent Country Park. The small copper has fluctuated greatly in abundance from year to year, both in London and nationally (Asher et al. 2001). In London the results from the transect monitoring (Figure 1) show similar periods of relative abundance between 1986 and the present to that of the national periods of relative abundance (Asher et al. 2001). Similar patterns have been noted for Hertfordshire and Middlesex (Murray and Wood 2001) and for Surrey (Jeffcoate, Enfield and Gerrard 2000). For the period 1978 to 1985 there was only one transect in London, that at Hampstead Heath, and again the general trends were similar to those nationally, though the zero count in 1985 creates difficulties in calculating collated indices for these years or in representing them in a log graph. Asher et al. (2001) noted that the annual changes in population size appeared to be related to the weather with warm, dry summers favouring the small copper, though numbers declined after the hot, dry summer of 1976. In London the small copper appears to be no longer as widespread as that shown by the distribution map in Plant (1987), and it has not been recorded at several transect sites in recent

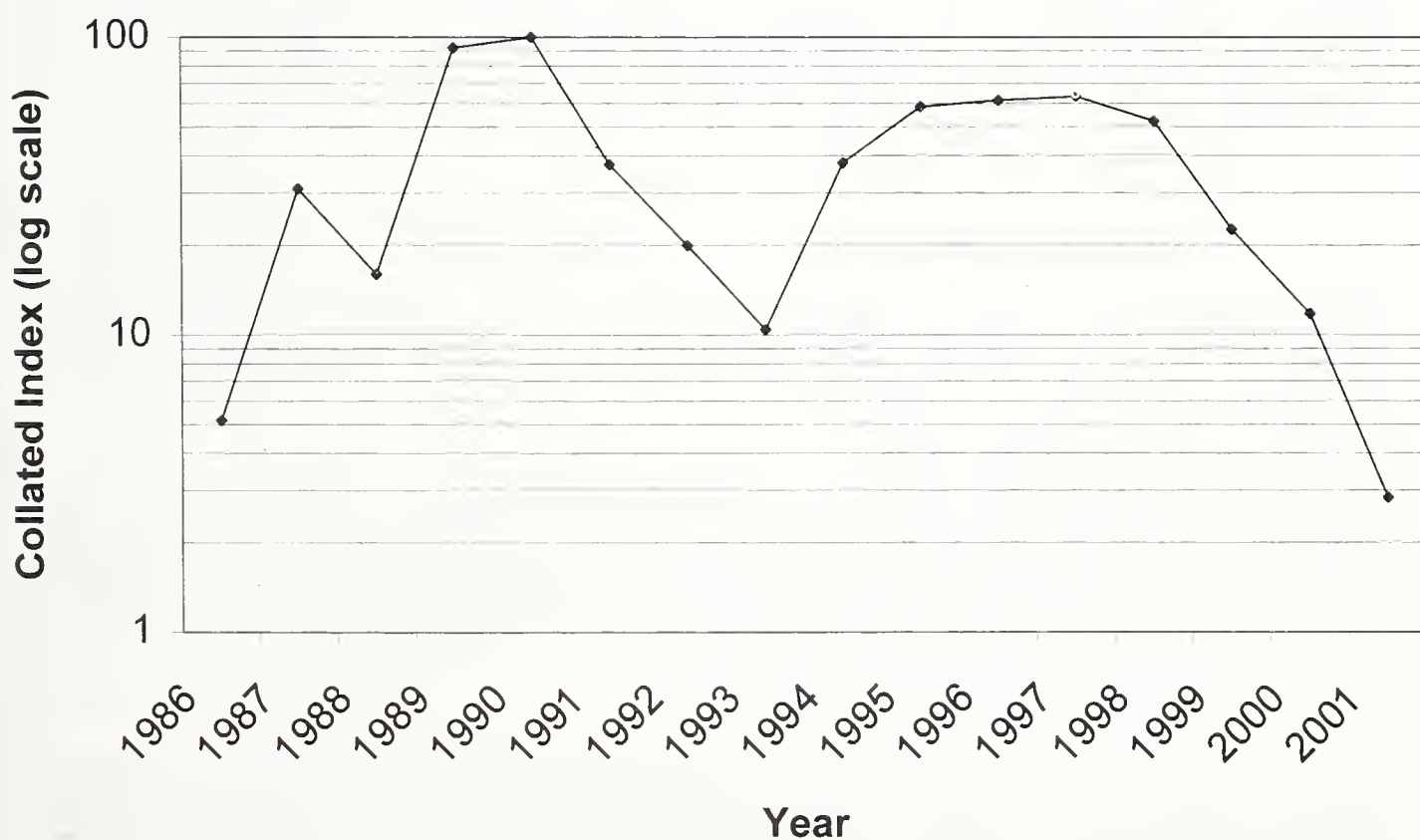


FIGURE 1. **Small copper:** collated indices for London for the years 1986–2001.

years where it was present in the early 1990s. Indeed, the reduction in abundance in London appears to be more pronounced than that nationally. Asher et al. (2001) note that nationally, the abundance of the small copper appears to have been much greater in the early twentieth century and many colonies have been lost due to the destruction of semi-natural grassland. Total count: 38.

SMALL BLUE *Cupido minimus*

The small blue is restricted to downland in London and was recorded on one transect in 2001, Hutchinson's Bank Nature Reserve, where the count was the highest since the transect commenced in 1997. Total count: 27.

BROWN ARGUS *Aricia agestis*

The brown argus was recorded on three transects in 2001 on the southern edge of London. The index declined as compared with 2000 and was the lowest since the London index commenced for this species in 1990. Records of the brown argus were also made at Mitcham Common, though not on the transect; and at Cranebank. Total count: 4.

COMMON BLUE *Polyommatus icarus*

The year 2001 was one of the poorest for the common blue since the index commenced. Common blues were recorded at most transects; the highest count was at Hutchinson's Bank Nature Reserve. The second highest was at Tower Hamlets Cemetery Park. Contrast this with the zero count for the common blue at the nearby Abney Park Cemetery where shade is much greater, and the high populations at both cemeteries of the holly blue. Total count: 387.

CHALKHILL BLUE *Polyommatus coridon*

The chalkhill blue was recorded on one transect on the southern edge of London, but in lower numbers than in 2000. Total count: 55.

HOLLY BLUE *Celastrina argiolus*

The index increased in 2001 as compared with 2000. Though recorded on all but three of the transects, two of the inner London transect sites accounted for the majority of the counts, with the highest counts again at Tower Hamlets Cemetery Park and then at Abney Park Cemetery. Total count: 468.

RED ADMIRAL *Vanessa atalanta*

The red admiral is a widespread species and was recorded at 22 of the transects, though the index declined. The highest count was again at Cranford Park. Away from the transects, one red admiral was observed as it flew across the pitch at Brisbane Road, Leyton, just before the kick-off of the Orient versus Spurs game on 6 January 2001. Total count: 198.

PAINTED LADY *Vanessa cardui*

Following the migration of 2000, there were few records in 2001, with one individual recorded from each of four transects. Casual records included those from a garden in Bromley, Vicarage Farm at Enfield, Trent Park, Ponders End, Waltham Abbey, and Walthamstow Reservoirs. Total count: 4.

SMALL TORTOISESHELL *Aglais urticae*

For the fourth consecutive year the index for the small tortoiseshell declined, with the index less than half that of 2000 and less than one thirtieth that of 1992. The highest counts were at Elthorne Waterside and at Cranford Park. The small tortoiseshell is however still widespread, though absent from four transects. Total count: 121.

PEACOCK *Inachis io*

Though the index declined as compared with 2000, the peacock was recorded on all transects. The highest count was again at Cranford Park. Total count: 1,231.

COMMA *Polygonia c-album*

The index declined for 2000, though the comma was recorded on all transects. Cranford Park had the highest count. Total count: 538.

DARK GREEN FRITILLARY *Argynnis aglaja*

A reliable index is difficult to calculate for this species which was recorded at one transect on the southern edge of London. The count declined in 2001. Total count: 2.

SILVER-WASHED FRITILLARY *Argynnis paphia*

A reliable index is difficult to calculate with one record from one transect on the southern edge of London. Away from the transects a silver-washed fritillary was observed at Trent Park, Enfield. Total count: 1.

SPECKLED WOOD *Pararge aegeria*

Recorded on all transects in 2001, though the index declined slightly as compared with 2000. As expected the largest populations are at woodland sites and the highest count was at Wandsworth Common Woodland. Total count: 3,018.

WALL BROWN *Lasiommata megera*

There were no transect records for the sixth consecutive year, though David Rear reported a single wall brown from just outside the London boundary but within the LNHS recording area at Woodlands Park, Buckinghamshire, on 8 July 2001. This follows the report of a wall brown from Enfield in 2000. Steve Connor has submitted a casual record dating from 1998 of a wall brown at William Girling Reservoir in Enfield. Total count: 0.

MARBLED WHITE *Melanargia galathea*

Marbled whites were recorded from seven transects, with the majority of the count from Hutchinson's Bank Nature Reserve, and secondly at the nearby Featherbed Lane Roadside Verge. The index declined markedly at both of these transects and hence in total. However, the colony at the Brent Reservoir appears to have established. Three were recorded at Riddlesdown, and singletons were recorded at Farthing Downs, Gutteridge Wood and at Mitcham Common (route A). Total count: 144.

GATEKEEPER *Pyronia tithonus*

The gatekeeper is now widespread throughout London and was recorded on all transects with the exception of one. The trend in London appears to be one of continuing increases as populations become established. While the highest count was at Roxborough Rough, six transects had counts only slightly lower. Though the index declined slightly in 2001, variation between the transects suggested that grassland management at individual sites is important. Large increases in counts were recorded at Clifford Road allotments and Cranford Park, and a large decline at Trent Country Park. The decline of the long-established population at Gutteridge Wood continued with a count of 54 in 2001, as compared with 480 in 1992. Total count: 2,625.

MEADOW BROWN *Maniola jurtina*

The index declined and numbers were down at most sites. The wet winter of 2000/1 possibly affected the meadow brown throughout London, as does grassland management at individual sites. At Fryent Country Park numbers

declined from 2,261 in 2000 to 446 in 2001: three possible reasons are suggested. During the winter of 2000/1 significant areas of the Fryent Country Park meadows were under a thin layer of water for days at a time; while management factors there included a flail cut without harvest of the hay in 2000 which would have smothered part of the sward; and a relatively early hay cut in late June and early July of 2001. At Mitcham Common (route B) the count declined from 1,344 in 2000 to 574 in 2001. The meadow brown remains the most common species in total at the transect sites and was recorded on all transects. Total count: 7,552.

RINGLET *Aphantopus hyperantus*

The index was approximately half that of 2000. However, the range of the species may be increasing in London with singletons or small numbers reported for the first time on transects at Trent Country Park, Gunnersbury Triangle, Roxborough Rough; and at Mitcham Common where a colony has been present for several years but this was the first time that ringlets were recorded on a transect (route B). Casual records of the ringlet were reported from Covert Way at Enfield, and from private gardens in Bromley, and in Streatham. Recorded on ten transects with the highest count at Hutchinson's Bank Nature Reserve which accounted for almost half of the total. Total count: 883.

SMALL HEATH *Coenonympha pamphilus*

The decline in London continued. The index was less than half that of 2000. The highest count was at Trent Country Park, and the small heath was recorded at three other transects: Farthing Downs, Hutchinson's Bank Nature Reserve and Cranford Park. The small heath was absent from both of the transects at Mitcham Common, though there were two sightings away from the transects. Small heaths were recorded at Hounslow Heath, though the count there had declined since 1998. Total count: 82.

Discussion

A high proportion of butterfly species had a 'poor' year in 2001 as compared with 2000. Only five or six species appeared to increase as measured by the indices: small and Essex skippers, green hairstreak, white-letter hairstreak, small blue and holly blue. It is possible that the wet winter of 2000/1 may have been a factor in the reduction, and for example, several transect recorders commented that parts of their transect sites were under water for several days during the winter of 2000/1. Of the species that were not recorded in 2001, one is worth mentioning. Following the migration of 2000, no clouded yellows *Colias croceus* were recorded on transects in London, nor were there any other records of this species in London.

The longer-term trends suggest that several woodland-edge species appear to be increasing in London. These include the speckled wood and gatekeeper. Species that appear to be declining in London are generally those dependent upon semi-natural grasslands. These include the small and Essex skippers, large skipper, small copper, common blue and small heath, though some of these gains and losses could turn out to be part of cyclic patterns. In Britain as a whole there is evidence that while climate change may be encouraging some of the mobile and widespread generalist butterflies, habitat change has caused the decline of a greater number of habitat specialist butterfly species (Warren, Hill, Thomas et al. 2001). They evaluated changes in the distribution and abundances of forty-six species of butterflies that approach their northern climatic range margins in Britain and found that three-quarters of these species had declined during the past thirty years.

Acknowledgements

The London Butterfly Index is a team effort. In 2001 the transect walkers were Aaron Beat and Bob Gillam at Hampstead Heath, Tony Bennett, Michael Berthoud, Simon Mercer and Leslie Williams at Fryent Country Park and Beane Hill, Ann Rix at Gutteridge Wood, M. A. Enfield, Gill Peachey, Louise Niekirk, Andrew Scott, Joanna Osmond, Simon Meek, Barry Gutteridge and Phil Strugnell at the Coulsdon Commons (Coulsdon, Farthing Downs, Kenley, and Riddlesdown), Diane Furley and Lorna Arnold at New Barnet Allotments, Martin Boyle at Mitcham Common, Valerie Carter at Forty Hill, Ian R Cunningham at Wandsworth Common Woodland, David Bevan and Keir Mottram at Railway Fields, John Grayley at Cranford Park, Martin Wills at Hutchinson's Bank Nature Reserve, Malcolm Bridge at South Norwood Country Park, John Whiteman at Trent Country Park, T. Lyle and A. Macquire at Tower Hamlets Cemetery Park, Scott Ferguson and Emma at Abney Park Cemetery, David Rear, Karalyn Foord, and Brian Prior at Gunnersbury Triangle, Paul Jeffery at Roxborough Rough, Andrew Self and Roy Beddard at the Brent Reservoir, John Whiteman at Elthorne Waterside, Joan Lowe at Featherbed Lane Verge (The Gallops), Christopher Slack at Cranebank, C. Slack, E. Yoxall and L. Hopkins at Hounslow Heath, and by Donald Room at Regent's Canal at Mile End/Victoria Park. Casual records were received from J. R. Bexley, Robert M. Callf, L. and R. Carpenter, Steve Connor, Don Freshwater, Stephen R. Harris, Irene Kettle, Ron Kettle, David Miller, Ian F. Pryer, Paul Sellers, R. J. White, A. J. P. Wingrove, Jane Woodliff, from LNHS field meetings and from some of the transect walkers. Landowners and land managers of the sites have an important role in undertaking habitat management and supporting monitoring. These include a significant number of the London Boroughs (see Methods) and the Corporation of London, the London Wildlife Trust, the Mitcham Common Conservators, the Friends of Tower Hamlets Cemetery Park, Abney Park Cemetery Trust, Barn Hill Conservation Group and the Welsh Harp Conservation Group. The co-operation with the county co-ordinators for Butterfly Conservation is noted, particularly Mike Enfield (Surrey), and John Murray and Andrew Wood (Hertfordshire and Middlesex). Dr Dave Dawson advised on the statistical method for the collations and the programming of the spreadsheets. Simon Mercer helped develop the series of linked spreadsheets. I would also like to thank Colin Plant of the London Natural History Society, M. Burgess, the Greater London Authority, the Millennium Awards, British Trust for Conservation Volunteers, and Caroline Williams.

References

- ASHER, J., WARREN, M., FOX, R., HARDING, P., JEFFCOATE, G. and JEFFCOATE, S. 2001. *The millennium atlas of Butterflies in Britain and Ireland*. Oxford University Press.
- CRAWFORD, T. J. 1991. The calculation of index numbers from wildlife monitoring data. In Goldsmith, B. (ed.), *Monitoring for conservation and ecology*: 225–248. Chapman and Hall, London.
- JEFFCOATE, G., ENFIELD, M. and GERRARD, B. 2000. *Surrey butterfly report*. Butterfly Conservation Surrey and SW London Branch.
- MURRAY, J. B. and WOOD, A. 2001. *Hertfordshire and Middlesex butterfly and moth report for 2000*. Hertfordshire and Middlesex Branch of Butterfly Conservation.
- PLANT, C. W. 1987. *The butterflies of the London Area*. London Natural History Society.
- PLANT, C. W. 1999. A review of the butterflies and moths (Lepidoptera) of the London Area for 1997 and 1998. *Lond. Nat.* **78**: 147–171.
- POLLARD, E. and YATES, T. J. 1993. *Monitoring butterflies for ecology and conservation*. Chapman & Hall, London.
- WARREN, M. S., HILL, J. K., THOMAS, J. A., et al. 2001. Rapid responses of British butterflies to opposing forces of climate and habitat change. *Nature* **414**: 65–69.
- WILLIAMS, L. R. 2000. London butterfly monitoring report for 1999. *Lond. Nat.* **79**: 87–102.

Book reviews

In June 2001 Oxford University Press launched two new series as part of its natural history collection — two volumes in the Photographic Guide series and three in the Pocket Guide series.

Photographic guide to the butterflies of Britain and Europe. Tom W. Tolman. 305 pp. Hardback £35, ISBN 0 19 850607 4; paperback £16.50, ISBN 0 19 850606 6.

Photographic guide to the sea and shore life of Britain and north-west Europe. Ray Gibson, Benedict Hextall and Alex Rogers. 436 pp. Hardback £35, ISBN 0 19 850041 6; paperback £15.95, ISBN 0 19 850709 7.

Animal tracks and signs. Preben Bang. 264 pp. Hardback £12.50, ISBN 0 19 850796 8.

Small freshwater creatures. Lars-Henrik Olsen, Jakob Sunesen and Bente Vita Pedersen. 229 pp. Hardback £12.50, ISBN 0 19 850798 4.

Small woodland creatures. Lars-Henrik Olsen, Jakob Sunesen and Bente Vita Pedersen. 208 pp. Hardback £12.50, ISBN 0 19 850797 6.

The two Photographic Guides are just that — a new generation of field guides packed with excellent photographic portraits of their subjects.

The **butterflies** are each represented by (usually) several close-ups of the different typical resting postures of each species — wings open, wings partly open, and wings closed to show either the underside markings to good effect or, in the case of species like the graylings, to show the cryptic coloration when at rest. Clear distribution maps, descriptions, comparisons with related species, details of flight periods and habitats are provided alongside the photographs.

The **sea and shore life** volume covers most of the animals and plants to be found on and below our shores from lichens, seaweeds and flowering plants through the sponges, anemones, jellyfishes, the several groups of worms to arthropods (insects, crabs, etc.) and molluscs, starfishes and fishes. The excellent photographs of the species, usually in water, naturally, are accompanied by details of habitats and ecology and distribution maps.

For the beginner interested in butterflies and shore life (excluding birds), I recommend they consider these two books, but remember they do cover more species than can be seen in the UK and Ireland, though bear in mind, Continental species are increasingly joining our fauna as we seem to be going through a period of climate and ocean current change, so these two volumes should cater adequately for that.

The three **Pocket Guides** are translated from the Danish, but their coverage has not been pruned to limit them to the British and Irish fauna. However, that is no bad thing; it is always good to have a knowledge of our near Continental species.

Animal tracks and signs are always an interesting study. However, many of the species included are not found in the British Isles, though we may have beavers back in Britain before long, but I doubt if anyone will seriously consider reintroducing bears! To examine signs of gnawing on trees, to examine the way nuts are tackled by different species of birds and small mammals and to identify the contents of bird of prey pellets is great fun and highly instructive.

Small freshwater creatures covers the wide range of animals of all orders that are found in fresh water. Useful notes on their habits and biology are included. The large number of coloured illustrations show also the developmental stages where appropriate of many species that pond-dippers would regularly find — that is, unless the *large* freshwater creatures, especially the pike and perch and other voracious fish on pages 184–187, or the grass snake on page 199, get there first!

Small woodland creatures covers more than species restricted to woodland. But how do you define woodland creatures? Many species, especially some of the butterflies, are largely restricted to clearings in woodlands, or even the edges of woodlands where they give way to grassland, whereas some ‘woodland’ species are happy with just an isolated tree as a larval foodplant. But never mind. We are treated to a fine assemblage of creatures — butterflies and moths, wood wasps, dragonflies, true flies, harvestmen, spiders, grasshoppers and crickets, plant bugs, timber beetles, carrion beetles, earthworms, snails and gall-makers that are found in and around woodlands. This book is an excellent introduction to the subject.

All in all, a fine collection of books in a rapidly evolving world of field guides.

K.H. HYATT

A provisional list of the microlepidoptera of Middlesex (vice-county 21)

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Abstract

A list of reliable, available records of microlepidoptera recorded in Middlesex (vice-county 21), England is presented. This vice-county includes most of the Greater London area. A total of 880 reliably recorded species are listed along with a further 18 that have been recorded in error in earlier literature. This compares with 888 species in adjacent Hertfordshire (vice-county 20) in which area recent recording has been intensive. The list for Middlesex is unlikely to be complete and it is the intention that the publication of this work might stimulate increased recording effort.

Introduction

Traditionally, the taxonomic recorders of the London Natural History Society have included in their researches the entire of that Society's recording area, and the larger moths (those currently regarded to fall within that totally artificial group of 'macrolepidoptera'), were reported upon for this region relatively recently (Plant 1993). In the case of the microlepidoptera, however, this has proved both impractical and unnecessary; impractical because of the disproportionately greater amount of direct effort that has to be put into recording 'micros' and unnecessary because all of the surrounding counties of South Essex, North Essex, Hertfordshire, Buckinghamshire, Surrey and West Kent now have their own active recording schemes. The inclusion of those areas in a work of this nature would generate unhelpful repetition. The present work restricts itself, therefore, to the Middlesex vice-county *sensu stricto*.

It is of interest that the microlepidoptera do not appear to have been fully summarized for Middlesex at any stage in history. The present work presents a list of the microlepidoptera of Middlesex. Whilst rigorous checks have been made to ensure that the list is accurate, no pretence is made that it is by any means complete, and it is hoped that it will stimulate further contributions.

Sources of data

A number of partial lists have appeared. The earliest of these was probably that by T. D. A. Cockerell (1893) in his work *A preliminary list of the insect fauna of Middlesex*, which commenced in the journal *Entomologist* in 1890 (volume 23, pages 368–369). Cockerell attempted to summarize all existing invertebrate data for the vice-county — a gargantuan task and clear evidence that the man was ahead of his time in his thinking on wildlife recording. The final part, that on pages 102–105 of volume 26 (published in 1893), was concerned with the Pyraloidea and was the only part that contained any lists of micro moths.

Since the end of the nineteenth century, a number of entomological and other journals have published microlepidoptera records relevant to Middlesex. Two in particular stand out. The *Transactions of the City of London Entomological and*

Natural History Society, published from 1892 to 1913, contained some information of relevance. This work was replaced by the *Transactions of the London Natural History Society* in 1914 and then by *The London Naturalist* in 1921.

Although initially active south of the River Thames, the South London Entomological and Natural History Society increasingly covered the wider London area and its own *Proceedings and Transactions* contain many useful records. These were later to become the *Proceedings and Transactions of the British Entomological and Natural History Society* as the Society changed its name to reflect its activities and, ultimately, the *British Journal of Entomology and Natural History*. It was in this journal series that a number of important Middlesex microlepidoptera lists appeared, in particular that for Buckingham Palace Garden in the early 1960s (Bradley & Mere, 1964; 1966).

Data from modern published lists have also been incorporated into the present summary, including those from the 1990s survey at Buckingham Palace Garden (Carter, 2001) and the garden at the British Museum (Natural History) in Honey et al. (1998). Much useful information has been gleaned from the publications of the Ruislip and District Natural History Society, in particular the lists by the late W. E. (Bill) Minnion (1957; 1959).

Unpublished sources have been many. One of special interest has been the extensive collection of black and white photographic prints of moths, taken by P. A. Goddard and now a part of the collections owned by the British Entomological and Natural History Society and housed in the Pelham-Clinton Building at Dinton Pastures, near Reading. Raymond Uffen very kindly (perhaps foolishly, as the pictures are arranged under Heslopian names in Heslopian order!) volunteered to work through these images, and to extract relevant data. Localities are given on the rear of the pictures — along with other information, in particular a note of whether or not the specimen was dissected. Although Tortricidae and Pyralidae have still to be worked through, no less than 135 species with Middlesex data are reliably identified — either by Uffen from the photograph or because the genitalia had been examined. Six of the species photographed by Goddard are not otherwise recorded for Middlesex!

Active modern recording has been carried out to differing degrees by a number of people, all of whom are acknowledged alongside their own records. However, I should single out for special mention Raymond Softly. For many years Ray has been operating an actinic trap on the balcony of his flat at Hampstead, and a second trap on the ground below, as well as occasional forays onto adjacent Hampstead Heath. This hard work and dedication has resulted in a very long list of species and is probably the most comprehensive list of moths for any Middlesex site at any point in history. Like so many of us, Ray runs the trap as a hobby — for pleasure; in 1982 he was rewarded by the capture of the first British record of *Argyresthia trifasciata*, in his third-floor balcony trap.

The Middlesex moth fauna

The Middlesex micro-moth fauna comprises 880 species. A further 18 species that have appeared in the literature at some point in the past are incorrect and are deleted from the county list. All of these species are included in the list that follows. Added together with the 572 larger moths and 32 butterflies that have been reliably recorded for Middlesex, this gives a Lepidoptera fauna for Middlesex of 1,484 species.

The totals can be usefully compared with adjacent Hertfordshire (VC 20) where recording has been quite intensive in recent years and has also involved a good deal of searching in the older literature. In that county a total of 888 microlepidoptera are reliably noted — eight more than in Middlesex. Adding the 609 larger moths and 54 butterflies gives an overall count of 1,551 species of Lepidoptera in Hertfordshire, compared to Middlesex's 1,484.

The list is presented in the sequence introduced by Bradley (2000) and nomenclature follows that same work except in a few cases where there is confusion or where Bradley is in error. Authorities are given for all names since there is a deal

of confusion on some areas and the author has no wish to contribute to this! Each species entry commences with the species number given by Bradley and all available records are listed, as far as possible in chronological order.

Acknowledgements

The many individual contributors are acknowledged alongside their records in the list; without their input this list could not have been at all possible. I am extremely grateful to a number of friends who have helped in various other ways in the production of this list. In particular, I wish to mention David Agassiz, Martin Albertini, Ched George, Martin Honey, John Langmaid and Raymond Uffen for much helpful discussion, and for their efforts in reading through the draft of this provisional list, adding records that I had missed, making corrections and passing various other helpful comments. John Langmaid and Raymond Uffen in particular have provided valuable opinion on various nomenclatural confusions within the Coleophoridae. Raymond Uffen's efforts in working through Goddard's photographic collection have been mentioned already and are very much appreciated. Martin Honey (The Natural History Museum) saved me a great deal of time and effort by looking up several literature references in volumes that are not represented in my own library. To all of these people I express my sincere gratitude.

References and bibliography of sources

- BRADLEY, J.D. 2000. *Checklist of Lepidoptera recorded from the British Isles*. Second, revised edition. D. J. & M. J. Bradley.
- BRADLEY, J. D. and MERE, R. M. 1964. Lepidoptera. In McClintock, D.C., Richards, O. W. & Knight, M. (eds) *Natural history of the garden of Buckingham Palace*. *Proc. Trans. S. Lond. ent. nat. Hist. Soc.* 1963: 55–74, pls vi–viii.
- BRADLEY, J.D. and MERE, R. M. 1966. Natural history of the garden of Buckingham palace. Further records and observations, 1964–5. Lepidoptera. *Proc. Trans. S. Lond. ent. nat. Hist. Soc.* 1966: 15–17.
- CARTER, D. J. 2001 The butterflies and moths (Lepidoptera) of Buckingham Palace Garden. In Plant, C. W. (ed.), *The natural history of Buckingham Palace Garden*, London. Part 2. *Lond. Nat.* 80 (Suppl.): 169–191.
- COCKERELL, T. D. A., 1893. A preliminary list of the insect fauna of Middlesex. Lepidoptera: Pyralidae. *Entomologist* 26: 102–105. (Continuation from earlier parts).
- GOATER, B. 1986. *British pyralid moths. A guide to their identification*. Harley Books, Colchester.
- HONEY, M. R., LEIGH, C. and BROOKS, S. J. 1998. The fauna and flora of the newly created Wildlife Garden in the grounds of The Natural History Museum, London. *Lond. Nat.* 77: 17–47.
- MINNION, W. E. 1957. Lepidoptera of Ruislip. Part V. *J. Ruislip Distr. nat. Hist. Soc.* 6: 5–8. (Lists the Lepidoptera recorded within a four-mile radius of Ruislip Lido).
- MINNION, W. E. 1959. Lepidoptera of Ruislip. Part VII. *J. Ruislip Distr. nat. Hist. Soc.* 8: 19–24. (Lists the Lepidoptera recorded within a four-mile radius of Ruislip Lido).
- PARSONS, M. S. 1993. *A review of the scarce and threatened pyralid moths of Great Britain*. UK Nature Conservation, number 11. JNCC.
- PLANT, C.W. 1993. *Larger moths of the London Area*. London Natural History Society.

Literature abbreviations used in the list

BENHS	=	<i>Proceedings and Transactions of the British Entomological and Natural History Society</i>
BJENH	=	<i>British Journal of Entomology and Natural History</i>
CLENHS	=	<i>Transactions of the City of London Entomological and Natural History Society</i>
Ent. Gaz.	=	<i>Entomologist's Gazette</i>
Ent. mon. Mag.	=	<i>Entomologist's Monthly Magazine</i>
Ent. Rec.	=	<i>Entomologist's Record and Journal of Variation</i>
Entom.	=	<i>Entomologist</i>
LN	=	<i>The London Naturalist</i>
MBGBI	=	<i>The moths and butterflies of Great Britain and Ireland</i>
SLENHS	=	<i>Proceedings and Transactions of the South London Entomological and Natural History Society</i>
TLNHS	=	<i>Transactions of the London Natural History Society</i>

Key to recorders mentioned in the list

AA	=	Alisdair Aston	KS	=	Klaus Sattler
AJH	=	Andrew J. Halstead	MA	=	Marcel Ashby
AME	=	A. Maitland Emmet (deceased)	Mab	=	Martin Albertini
AMG	=	A. M. (Ched) George	MB	=	Maxwell Barclay
AS	=	Andrew Self	MG	=	Matthew Gandy
ASi	=	A. Sich (deceased)	MH	=	Martin C. Harvey
BG	=	Barry Goater	MHo	=	Martin Honey
CC	=	Chris Court	MHg	=	Martin Hough
CWP	=	Colin W. Plant	MHy	=	Mark Hadley
DH	=	Daniel Hackett	MJH	=	Michael J. Hammerson
DJC	=	David J. Carter	MP	=	Mark Parsons
DJLA	=	David Agassiz	MS	=	M. Shaffer
DR	=	David Rear	MT	=	Michael Thain
DP	=	Donald Prance	MZ	=	Michael Zeffert
DS	=	Dougie Stirling (deceased)	NB	=	Neil Bowman
DSh	=	Dave Sheppard	PAB	=	Paul A. Brown
ECP-C	=	Teddy Pelham-Clinton (deceased)	PAG	=	P. A. Goddard (deceased)
EG	=	Elizabeth Goodyear	PGH	=	P.G. Haynes
ESB	=	Eric S. Bradford (deceased)	PHS	=	Phil Stirling
GSR	=	Gaden S. Robinson	PJE	=	Peter J. Edwards
IJK	=	Ian J. Kitching	PRH	=	P.R. Hall
JB	=	Jeremy Burge	RAS	=	Ray Softly
JBL	=	John B. Latham	RD	=	Rob Dyke
JDB	=	John Bradley	RJH	=	Bob Heckford
JEDM	=	Edward Milner	RWJU	=	Raymond Uffen
JH	=	John Herbert	RT	=	Roger Taylor (Ruislip)
JHo	=	John Hollingdale	SAKJ	=	Sam Knill-Jones
JK	=	Jon King	SC	=	Stephen Church (deceased)
JMC-H	=	Michael Chalmers-Hunt	SW	=	Stan Wakeley (deceased)
JRL	=	John R. Langmaid	TF	=	Tim Freed
KDR	=	Kevin DuRose	WEM	=	W. (Bill) E. Minnion (deceased)
KGVS	=	Ken Smith			

Exhibits to meetings are quoted without an author — thus: ‘Chiswick, larvae boring the burs and stem of *Arctium lappa* (SLENHS 1953–54: 12)’.

SPECIES OF MICROLEPIDOPTERA RECORDED IN MIDDLESEX — VICE-COUNTY 21

MICROPTERIGIDAE

- 1 *Micropterix tunbergella* (Fabr.)
Mapped for Middlesex in MBGBI 1 (1976).
- 4 *Micropterix aruncella* (Scop.)
Fir and Pond Wood N. R., 1985 (PGH).
- 5 *Micropterix calthella* (L.)
Fir and Pond Wood, common 9.v.1975 (DJLA).

ERIOCRANIIDAE

- 6 *Eriocrania subpurpurella* (Haw.)
Ruislip (Minnion, 1959); Stanmore Common 1.v.1965 (PAG photo); Fir & Pond Wood N. R., 1985 (PGH); Hampstead, 1986, 1987, 1988 (RAS); Highgate, 1987, 1993 (MJH); Long Wood, 5.v.1989 (JDB); Hounslow Heath LNR, 26.iii.1997 (JH); Holland Park, 30.iii. – 21.iv.1998 (TF); Buckingham Palace Garden (Bradley & Mere, 1964; Carter, 2001).

- 8 ***Eriocrania unimaculella* (Zett.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden (Bradley & Mere, 1964).
- 9 ***Eriocrania sparrmannella* (Bosc)**
Ruislip (Minnion, 1959).
- 10 ***Eriocrania salopiella* (Stt.)**
Stanmore Common, 25.iv.1965 (PAG photo).
- 11 ***Eriocrania haworthi* Bradley**
Stanmore Common, 15.iv.1965 (PAG photo labelled *E. purpurella*).
- 13 ***Eriocrania semipurpurella* (Steph.)**
Stanmore Common, 11.iv.1965 (PAG photo).

NEPTICULIDAE

- 40 ***Bohemannia pulverosella* (Stt.)**
Buckingham Palace Garden, leaf mines on apple between 1965 and 1989 (Carter, 2001); Kensal Green Cemetery, '*Malus domestica*' 1994 (JBL — det. conf. AME).
- 20 ***Ectoedemia decentella* (H.-S.)**
Buckingham Palace Garden, first recorded 1975 (Carter, 2001); Enfield Highway, 12.viii.1975, 2.vii.1976, 12.viii.1979 (DJLA). Hampstead, 1986, 1987, 1988 (RAS); Natural History Museum Wildlife Garden, South Kensington, 13.vi.1996, 9.vi.1997 & 8.vii.1999 (MHo).
- 21 ***Ectoedemia sericopeza* (Zell.)**
Natural History Museum Wildlife Garden, South Kensington, 22.viii.1995 (MHo).
- 22 ***Ectoedemia louisella* (Sirc.) = *sphendami* Hering**
Highgate Wood, 10.ix.1985 (MJH — *vide Ent. Rec.* 100:120 in which the year is incorrectly stated); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Buckingham Palace Garden, at m.v. on 24.viii.1995 (Carter, 2001); Hampstead, 25.viii.1997 — first ever here (RAS).
- 23 ***Ectoedemia argyropeza* (Zell.)**
Bentley Priory, 8.x.1988 (AME).
- 24 ***Ectoedemia turbidella* (Zell.)**
First described as a new species (as *marionella* Ford) from Stanmore, v.1950 (*Ent. Gaz.* 1: 39–40).
- 25 ***Ectoedemia intimella* (Zell.)**
Mapped for Middlesex in MBGBI 1 (1976).
- 26 ***Ectoedemia agrimonae* (Frey)**
Scratch Wood, 1981 (AME).
- 28 ***Ectoedemia angulifasciella* (Stt.)**
Scratch Wood, 1981 (AME).
- 29 ***Ectoedemia atricollis* (Stt.)**
Bentley Priory, 8.x.1988 (AME); Tower Hamlets Cemetery, 2001 (CWP).
- 34 ***Ectoedemia occultella* (L.)**
Ruislip (Minnion, 1959); Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Mimmshall Wood, mines on 21.xi.2001 (EG).
- 35 ***Ectoedemia minimella* (Zett.)**
Hampstead Heath, 24.ix.1983 (AME)
- 36a ***Ectoedemia heringella* Mariani**
Buckingham Palace Garden. New to Britain here in 2001 where leaf mines were superabundant during December (MHo; DJC — *in press*).
- 37 ***Ectoedemia albifasciella* (Haw.)**
Buckingham Palace Garden (Bradley & Mere, 1964); Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME).
- 38 ***Ectoedemia subbimaculella* (Haw.)**
Stanmore Common, 8.x.1988 (AME); Natural History Museum Wildlife Garden, South Kensington, 10.vii.1996, 19.vi.2000 & 26.vi.2001 (MHo); Tower Hamlets Cemetery, 2001 (CWP).
- 39 ***Ectoedemia heringi* (Toll)**
Tower Hamlets Cemetery, 2001 (CWP).
- 40 **after 13**

- 41 ***Ectoedemia atrifrontella* (Stt.)**
Mapped for Middlesex in *MBGBI* 1 (1976).
- 42 ***Ectoedemia septembrella* (Stt.)**
Buckingham Palace Garden, between 1965 and 1989 (Carter, 2001).
- 46 ***Trifurcula immundella* (Zell.)**
Bentley Priory, 8.x.1988 (AME); Hounslow Heath LNR, mines, 29.i.1998 (CWP).
- 46a ***Trifurcula squamatella* (Stt.)**
Old, unconfirmed record in Stainton's *Manual*.
- 50 ***Stigmella aurella* (Fabr.)**
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Hounslow Heath LNR, mines, 29.i.1998 (CWP); Uxbridge, mines in 1998 (MH); Tower Hamlets Cemetery, 2001 (CWP). The form *fragariella* Heyd. is noted at Scratch Wood, 1981 (AME).
- 51 **invalid species. See 50, above.**
- 53 ***Stigmella splendidissima* (H.-S.)**
Osterley Park, 1987 (JDB).
- 63 ***Stigmella lemniscella* (Zell.) = *marginicolella* (Stt.)**
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 64 ***Stigmella continuella* (Stt.)**
Mapped for Middlesex in *MBGBI* 1 (1976).
- 65 ***Stigmella speciosa* (Frey)**
Hampstead, 1983, mine (RAS det. AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 66 ***Stigmella sorbi* (Stt.)**
Stanmore Common, 8.x.1988 (AME).
- 67 ***Stigmella plagicolella* (Stt.)**
Hampstead Heath, mines in 1983 (CWP); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, mines, 31.viii.2001 (CWP).
- 68 ***Stigmella salicis* (Stt.)**
Hampstead, 1983, mine (RAS det. AME); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Trent Park, mines, 31.viii.2001 (CWP).
- 70 ***Stigmella obliquella* (Hein.)**
Hampstead, 1983, mine (RAS det. AME); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Natural History Museum Wildlife Garden, South Kensington, 1.vii.1999 (MHo).
- 73 ***Stigmella trimaculella* (Haw.)**
Hampstead, 1983, mine (RAS det. AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Dukes Meadows, mines on poplar, 15.x.1995 (RWJU); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, 7.vii.1998, 16.vi.1999, 5.vii.1999 & 30.vii.1999 & 19.vi.2000 (MHo); Tower Hamlets Cemetery, 2001 (CWP).
- 74 ***Stigmella assimilella* (Zell.)**
Denham Lock Wood, 1996 — mines on *Populus tremula* (CWP).
- 75 ***Stigmella floslactella* (Haw.)**
Old Park Wood, Harefield, 22.x.1996 (RWJU); Mimmshall Wood, mines on 21.xi.2001 (EG).
- 77 ***Stigmella tityrella* (Stt.)**
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Stanmore Common, 8.x.1988 (AME); Gunnersbury Park, mines, 15.x.1995 (RWJU); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Trent Park, mines, 31.viii.2001 (CWP).
- 78 ***Stigmella incognitella* (H.-S.) = *pomella* (Vaughan)**
Mapped for Middlesex in *MBGBI* 1 (1976).

- 79 ***Stigmella perpygmaeella* (Doubleday)**
Buckingham Palace Garden, between 1965 and 1969, but data not available (JDB in Carter, 2001); Bentley Priory, 8.x.1988 (AME); Denham Lock Wood, 1996 (CWP); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 80 ***Stigmella ulmivora* (Fologne)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1983, mine (RAS det. AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP).
- 81 ***Stigmella hemargyrella* (Koll.)**
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP).
- 83 ***Stigmella atricapitella* (Haw.)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1983, mine (RAS det. AME); Osterley Park, 1987 (JDB); Stanmore Common, 8.x.1988 (AME); Long Wood, 5.v.1989 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, 24.vii.1996 & 6.viii.1999 (MHo); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, mines, 31.viii.2001 (CWP).
- 84 ***Stigmella ruficapitella* (Haw.)**
Buckingham Palace Garden, between 1965 and 1989 (JDB); Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Natural History Museum Wildlife Garden, South Kensington, 22.vii.1995 (MHo); Denham Lock Wood, 1996 (CWP); Mimmshall Wood, mines on 21.xi.2001 (EG); Tower Hamlets Cemetery, 2001 (CWP).
- 85 ***Stigmella suberivora* (Stt.)**
Buckingham Palace Garden, vacated mine on *Quercus ilex*, 13.vi.1996 (DJC); Hampstead, 1983, mine (RAS det. AME).
- 88 ***Stigmella samiatella* (Zell.)**
Natural History Museum Wildlife Garden, South Kensington, 19.vi.1995, 24.vii.1996 & 18.vi.1999 (MHo).
- 89 ***Stigmella basiguttella* (Hein.)**
Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Natural History Museum Wildlife Garden, South Kensington, 6.vi.1996 (MHo).
- 91 ***Stigmella minusculella* (H.-S.)**
Lampton Park, 9.x.1982, mines on *Pyrus*. No longer extant at this site as the two pear trees have now been cut down (AME).
- 92 ***Stigmella anomalella* (Goeze)**
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, mines, 31.viii.2001 (CWP).
- 93 ***Stigmella centifoliella* (Zell.)**
Buckingham Palace Garden, 31.viii.1997 (AME & CWP).
- 95 ***Stigmella viscerella* (Stt.)**
Denham Lock Wood, 1996 (CWP).
- 97 ***Stigmella malella* (Stt.)**
Osterley Park, 1987 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 99 ***Stigmella hybnerella* (Hb.)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1983, mine (RAS det. AME); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Buckingham Palace Garden, 31.viii.1997 (AME & CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 100 ***Stigmella oxyacanthella* (Stt.)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1983, mine (RAS det. AME); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

- 102 *Stigmella aceris* (Frey)
Tower Hamlets Cemetery, a few mines clearly of this species, 2001 (CWP).
- 103 *Stigmella nylandriella* (Tengst.)
Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME).
- 107 *Stigmella regiella* (H.-S.)
Scratch Wood, 1981 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 108 *Stigmella crataegella* (Klim.)
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Buckingham Palace Garden, at m.v. on 27.vi.1996 (DJC); Denham Lock Wood, 1996 (CWP); Buckingham Palace Garden, 31.viii.1997 (AME & CWP) and an adult at m.v. on 24.viii.1995 (DJC).
- 111 *Stigmella microtheriella* (Stt.)
Hampstead, 1983, mine (RAS det. AME); Holland Park, 21.ix.1986 (CWP); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Old Park Wood, Harefield, 22.x.1996 (RWJU); Trent Park, mines, 31.viii.2001 (CWP).
- 112 *Stigmella luteella* (Stt.)
Scratch Wood, 1981 (AME); Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Natural History Museum Wildlife Garden, South Kensington, 10.vii.1996 (MHo).
- 113 *Stigmella distinguenda* (Hein.)
Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 115 *Stigmella alnetella* (Stt.)
Mapped for Middlesex in MBGBI 1 (1976).
- 116 *Stigmella lapponica* (Wocke)
Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Denham Lock Wood, 1996 (CWP).
- 117 *Stigmella confusella* (Wood)
Hampstead, 1983, mine (RAS det. AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 118 *Stigmella acetosae* (Stt.)
Mapped for Middlesex in MBGBI 1 (1976).

OPOSTEGIDAE

- 119 *Opostegia salaciella* (Tr.)
Mapped for Middlesex in MBGBI 1 (1976); Hampstead, 1982 (RAS); Brompton Cemetery, 28.vii.1998 (TF).
- 121 *Pseudopostega crepusculella* (Zell.)
Stanmore railway embankment, 31.vii.1964 (PAG photo).

TISCHERIIDAE

- 123 *Tischeria ekebladella* (Bjerk.)
Park Wood, Ruislip, 7.viii.1965 (PAG photo); Stanmore Common, 8.x.1988 (AME); Gunnersbury Park, mines, 15.x.1995 (RWJU); Denham Lock Wood, mines, 1996 (CWP); Holland Park, 6.vii.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 28.vii.1997 & 26.viii.1999 (MHo); Tower Hamlets Cemetery, 2001 (CWP).
- 125 *Emmetia marginea* (Haw.)
Ruislip (Minnion, 1959); Enfield Highway, 1975 — mines (DJLA); Buckingham Palace Garden, first recorded 1983 but also noted since (DJC); Hollickwood Avenue, N12, 5.viii.1990 (KGVS); Holland Park, 21.ix.1986 (CWP); Osterley Park, 1987 (JDB); Hampstead, 1988 (RAS); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Buckingham Palace Garden, at m.v. on 30.vi.1996 (DJC); Denham Lock Wood, mines, 1996 (CWP); Old Park Wood, Harefield, mines v. local on bramble, 22.x.1996 (RWJU); Hampstead, 2000 (RAS); Copse Wood, Ruislip, one mine on bramble, 8.v.2001 (RWJU); Tower Hamlets Cemetery, 2001 (CWP).

INCURVARIIDAE

- 130 *Incurvaria masculella* (D. & S.)
Ruislip (Minnion, 1959); Harrow Weald, 11.v.1965 (PAG photo); Enfield 8.v.1975 (DJLA); Hampstead, 1985 (RAS); Hollickwood Avenue, N12, 14.v.1991 (KGVS); Hyde Park, 1 on 19.vi.1996 (TF); Denham Lock Wood, 1996 (CWP).

- 131 ***Lampronia oehlmanniella* (Hb.)**
Ruislip (Minnion, 1959); Hampstead, 1988 (RAS); Denham Lock Wood, 1996 (CWP).
- 135 ***Lampronia luzella* (Hb.)**
Mapped for Middlesex in *MBGBI* 1 (1976).
- 136 ***Lampronia corticella* (L.)**
Ruislip (Minnion, 1959).
- 138 ***Lampronia fuscata* (Tengst.)**
Ruislip (Minnion, 1959).
- 140 ***Nematopogon swammerdamella* (L.)**
Ruislip (Minnion, 1959); Fir & Pond Wood 9.v.1975 (DJLA); Highgate Wood, 1987, 1993 (MJH); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 141 ***Nematopogon schwarziellus* (Zell.)**
Ruislip (Minnion, 1959); Hampstead, 1984, 1988 (RAS); Highgate Wood, 1993 (MJH).
- 144 ***Nemophora fasciella* (Fabr.)**
Chiswick, 7.vii.1958, and larvae on *Ballota nigra* 1960 (RWJU); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Hounslow Heath LNR, 18.vi.1997 (JH); City Mill River, 15.vi.2000 (DH).
- 146 ***Nemophora cupriacella* (Hb.)**
Mapped for Middlesex in *MBGBI* 1 (1976).
- 148 ***Nemophora degeerella* (L.)**
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Hampstead, 1988 (RAS); Potters Bar, 1990, 1996 (JK); Coppetts Wood, 30.vi.1991 (KGVS); Alexandra Park, an adult from 'oak foliage', 23.v.1994 (DH); Denham Lock Wood, 1996 (CWP); Cranford, 1996 (JK); Brent Reservoir banks, 1998 (AS); Holland Park, 29.v.1998 (TF); Hampstead, 16.vi.2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).
- 149 ***Adela cuprella* (D. & S.)**
Mapped for Middlesex in *MBGBI* 1 (1976).
- 150 ***Adela reaumurilla* (L.)**
Ruislip (Minnion, 1959); Stanmore (small wood by golf course) 21.v.1965, Stanmore Common 8.v.1965 (PAG photo); Trent Park, 1975 (DJLA); Hollickwood Avenue, N12, 18.v.1990 & 25.v.1970 (KGVS); Trent Park, Enfield 1.v.1975 (DJLA); Fir & Pond Wood 9.v.1975 (DJLA); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Potters Bar, 1990, 1996 (JK); Coldfall Wood, 18.v.1994 (DH det. CWP); Denham Lock Wood, 1996 (CWP); Hounslow Heath LNR, 17.iv.1997 (JH); Holland Park, 15.v.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 21.iv.1998 (MHo); Ickenham Marsh (woodland), Hillingdon, 25.iv.2002 (CWP).
- 153 ***Adela fibulella* (D. & S.)**
Ruislip (Minnion, 1959).

HELIOZELIDAE

- 154 ***Heliozela sericiella* (Haw.)**
Buckingham Palace Garden, 20.v.1982 (DC).
- 157 ***Heliozela hammoniella* (Sorhagen)**
Stanmore Common, 8.x.1988 (AME).

PSYCHIDAE

- 177 ***Dahlica inconspicuellus* (Stt.)**
Buckingham Palace Garden, a larva in the m.v. trap on 1.vi.1995 (DJC) is the first record, but there are subsequent records of the species here.
- 185 ***Luffia ferchaultella* (Steph.)**
The late Maitland Emmet told me that this species was included for Middlesex on his maps on the basis of a record in *Ent. mon. Mag.* 95: 3. However, there is no mention on of this species on page 3, or on page iii, despite it being cited in the index (MHo — pers. comm.); Osterley Park, 1987 (JDB).
- 186 ***Psyche casta* (Pallas)**
Hampstead, 1986 (RAS); Bentley Priory, 8.x.1988 (AME); Hollickwood Avenue, N12, 26.v.1990 (KGVS det. CWP); Denham Lock Wood, 1996 (CWP); Long Lane Pasture, Finchley, 1999 (CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 187 ***Psyche crassiorella* Bruand**
Mapped for Middlesex in *MBGBI* 2 (1985).

188 *Psyche betulina* (Zell.)

Approximately 12 specimens bred ex lichen on stems of buckthorn at Hampstead (*Ent. mon. Mag.* 6:94).

189 *Epichnopterix plumella* (D. & S.)

Ruislip (Minnion, 1959); Hampstead, no date available (RAS).

195 *Sterropterix fusca* (Haw.)

2 cases Bishop's Wood, Hampstead [as *Psyche calvella*], 14.v.1867, by Mr McLachlan and H. G. Knaggs (*Ent. mon. Mag.* 4: 69).

TINEIDAE

196 *Morophaga choragella* (D. & S.)

Enfield (Whitewebbs Park) bred from *Polyporus* 3.v.1976, also Enfield 8.vi.1977 (4), 12.vi.1977 (2) (DJLA); Buckingham Palace Garden, first recorded here on 20.vi.1979 (DJC), but not noted during the 1995–97 survey; Pinner, 1980 (WEM); Osterley Park, 1987 (JDB); Stanmore Common, a larva 8.x.1988 later reared (AME); Hampstead, 1984, reared from bracket fungus (RAS); Holickwood Avenue, N12 — reared from pupa in bracket fungus on dead *Aesculus hippocastanum*, 2.viii.1992 (KGVS).

200 *Psychoides filicivora* (Meyrick)

Natural History Museum Wildlife Garden, South Kensington, 20.v.1998 (bred), 17.vi.1998 & 3.v.1999 (large numbers breeding) (MHo), 24.xi.2000 (adults and signs of larvae feeding on sporangia of hart's-tongue fern) (MHo).

201 *Tenaga nigripunctella* (Haw.)

Mapped for Middlesex in *MBGBI* 2 (1985).

206 *Stenoptinea cyaneimarmorella* (Millière)

First recorded as British in Middlesex at Acton Green (Sorrell, T., 1876. *New British Tinea. Entomologist* 9: 159).

211 *Haplotinea ditella* Pierce & Metcalfe

Mapped for Middlesex in *MBGBI* 2 (1985).

212 *Haplotinea insectella* (Fabr.)

Mapped for Middlesex in *MBGBI* 2 (1985).

215 *Nemapogon granella* (L.)

Ruislip (Minnion, 1959); Dove Mews, SW5, one on 9.vii.1980 (SAKJ); Hyde Park, eight adults reared from *Inonotus hispidus* growing on *Platanus* sp., v.2000, identified by GSR (MB).

216 *Nemapogon cloacella* (Haw.)

Ruislip (Minnion, 1959); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield Highway 15.v.1976 bred from pigeons' nests, 8–12.vi.1977 (4) (DJLA); Hampstead, 1984 (RAS det. ESB); Osterley Park, 1987 (JDB); Hyde Park, larva in dry, white example of the fungus *Laetiporus sulphureus* on an oak tree collected on 17.xi.1994 yielded an adult on 26.ii.1995 (DH det. CWP); Buckingham Palace Garden, at m.v. on 30.v.1996 (DJC); Park Wood, Ruislip, 15.vi.1996 (MH); Hampstead, 16.vi.2000 (RAS).

218 *Nemapogon variatella* (Clemens)

Enfield Highway (9) emerging from old pear trunk 12.vi.1977 & (1) 22.vi.1977 (DJLA); Buckingham Palace Garden, first recorded 20.v.1982 (DJC); Hampstead, 1983 & 1984 (RAS); Natural History Museum Wildlife Garden, South Kensington, 6.vi.1996 & 19.vi.1999 (MHo).

220 *Nemapogon clematella* (Fabr.)

Mapped for Middlesex in *MBGBI* 2 (1985).

223 *Nemaxera betulinella* (Paykull)

Ruislip (Minnion, 1959).

224 *Triaxomera parasitella* (Hb.)

Ruislip (Minnion, 1959); Enfield 8.vi.1977 (DJLA); Kenwood, 1984 (RAS); Hampstead, 15.vi.1989 (RAS); Coldfall Wood, a stump of *Carpinus betulus* collected on 12.vi.1994 yielded an adult on each of 18.vi. and 21.vi. 1994 (DH det. CWP); Denham Lock Wood, 1996 (CWP).

225 *Triaxomera fulvimitrella* (Sodoffsky)

Hampstead (actinic trap on balcony at Parliament Court), one on 27.vi.1996 (RAS det. CWP).

226 *Triaxomasia caprimulgella* (Stt.)

Mapped for Middlesex in *MBGBI* 2 (1985).

- 227 ***Monopis laevigella* (D.& S.)**
Chiswick, 22.ix.1952 and larvae in litter beneath privet hedge to 1970 (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Winchmore Hill, 1971 and Enfield Highway, 1972 (DJLA); Holland Park, 1980 (CWP); Fulham, 1986 (JB); Hampstead, 1986 (RAS); Holloway, dead in light fitting, 1988 (NB, det. CWP); Hollickwood Avenue, N12, 29.viii.1991 (KGVS); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 18.vi.1998 (TF); Hampstead, 2000 (RAS).
- 228 ***Monopis weaverella* (Scott)**
Hollickwood Avenue, N12, one on each of 20.v.1990, 21.v.1990 & 20.ix.1990 (KGVS).
- 229 ***Monopis obviella* (D.& S.)**
Dukes Meadows, Chiswick, vi.1953 (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield Highway 23.vii.1977, 20.vi.1979, 25.vii.1980 (DJLA); Hampstead, 1984, 1985, 1987 (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 29.viii.1991 (KGVS); Denham Lock Wood, 1996 (CWP); Hampstead, 7.vii.2000 (RAS).
- 230 ***Monopis crocicapitella* (Clemens)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield Highway 17.vii.1972, 8.vi.1980 (DJLA); Hampstead, 1986, 1987, 1988 (RAS); Holland Park, 15.v.1998 (TF); Hampstead, 2000 (RAS).
- 231 ***Monopis imella* (Hb.)**
Holland Park, one on 11.v.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 10.ix.1999 (MHo); Buckingham Palace Garden, 21.viii.1997 (DJC).
- 234 ***Trichophaga tapetzella* (L.)**
Mapped for Middlesex in *MBGBI* 2 (1985).
- 236 ***Tineola bisselliella* Hummel**
Chiswick, on woollens, 1945–55, not seen after central heating was installed (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden (Carter, 2001); Hampstead, 1987, 1988 (RAS); Potters Bar, 1993 (JK); Buckingham Palace Garden, at m.v. on 6.vi.1996 (DJC); Natural History Museum Wildlife Garden, South Kensington, 30.viii.1995 & 18.v.1998 (MHo); Brompton Cemetery, 12–19.v.1998 (TF).
- 237 ***Niditinea fuscella* (L.)**
Hampstead, 1985 (RAS det. ESB) and 1998 (RAS); Buckingham Palace Garden, one on 7.vi.1988 (JDB); Long Wood, 5.v.1989 (JDB); Potters Bar, 1993 (JK).
- 239 ***Tinea columbariella* Wocke**
Buckingham Palace Garden, between 1961 and 1963, and in the towers of the British Museum (Natural History) (Bradley & Mere, 1964); Enfield Highway 20.vii.1972, 9, 25 & 27.vii.1978, 20 & 22.vi.1979 (DJLA); Hampstead, 7.vii.1987 (RAS).
- 240 ***Tinea pellionella* (L.)**
Chiswick, in house, 25.vi.1952 (RWJU); Ruislip (Minnion, 1959); Enfield Highway 28.vi & 4.vii.1977, bred from pigeon's nest 22.vi.1977 (DJLA); Buckingham Palace Garden, first recorded 6.viii.1979 (Carter, 2001); Hampstead, 1984 (RAS); Osterley Park, 1987 (JDB); Highgate Wood, 1994 (MJH); Natural History Museum, South Kensington, in Entomology Department 16.vi.1998 — perhaps originating in the garden (MHo); Hampstead, 18.vi.2000 (RAS).
- 244 ***Tinea flavescens* (Haw.)**
Chiswick late vi.1954 (RWJU).
- 245 ***Tinea pallescentella* (Stt.)**
Imperial College, South Kensington, 13.xi.1952 (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1985 (RAS det. ESB); Dove Mews, SW5, 1979 & 1980 (SAKJ); Colherne Court, SW5, several taken in 1981 (SAKJ); Earls Court, one indoors on 28.ii.1998 (MP); Hampstead, 1998 (RAS).
- 246 ***Tinea semifulvella* (Haw.)**
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Hampstead, 1991 (RAS).
- 247 ***Tinea trinotella* Thunb.**
Ruislip (Minnion, 1959); Enfield Highway, 1972 (DJLA); Hampstead, 1984 (RAS); Osterley Park, 1987 (JDB); Hounslow Heath, 17.vii.1990 (JDB); Buckingham Palace Garden, first recorded 14.vii.1969 (JDB) and then at m.v. on 8.vi.1995 and 28.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, 13.v.1997, 12.v.1998 & 6.viii.1999 (MHo); Holland Park, 11.v. & 19.v.1998 (TF); Highgate Wood, 1997, 1998 (MJH); Hampstead, 22.vii.2000 (RAS).

247b *Tinea murariella* (Stdgr.)

Hackney, larvae damaging a carpet on the fifth floor of a block of flats in April 1978 were eventually determined as this species — new to Britain (Adams, *Ent. Gaz.* 30: 269–270). This is likely to relate to an importation (Robinson, *Ent. Gaz.* 31: 111).

251–253 (former Ochsenheimeriidae) now in Yponomeutidae, after 463**254–264 (Lyonetiidae) now positioned after the Epermeniidae (before 490)****BUCCULATRICIDAE****265 *Bucculatrix cristatella* Zell.**

Mapped for Middlesex in *MBGBI* 2 (1985).

266 *Bucculatrix nigricomella* Zell.

Natural History Museum Wildlife Garden, South Kensington, 19.v.1999 & 30.vii.1999 (MHo).

267 *Bucculatrix maritima* Stt.

Buckingham Palace Garden, first recorded 19.viii.1966 (JDB).

270 *Bucculatrix frangutella* Goeze

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964).

271 *Bucculatrix albedinella* Zell.

Buckingham Palace Garden, first recorded 3.vi.1970, then subsequent records (Carter, 2001); Near Dukes Meadows, Chiswick, old mines, moulting cocoon and windows on elm, 15.x.1995 (RWJU).

273 *Bucculatrix thoracella* (Thunb.)

South Kensington, 23.x.1981, many vacated mines and moulting cocoons — first London record (RJH — given in Emmet, 1984. *Ent. Rec.* 96: 130–131, who then goes on to list reports from Chelsea, Lampton and Hampstead Heath); Hampstead, larvae in profusion on lime trees *Tilia* × *europaea* on 4.x.1987. Larvae hanging, 18 & 19.vi. and 29 & 31.viii.1989, adults 16.vii.–3.viii.1989. In 1995, a total of 14 trapped on 6.v., 8.v., 19, 21, 27, 29 and 30.vii then 1.viii, suggesting two generations (RAS); Russell Square, pupa on trunk of *Platanus* × *hispanica*, 14.iv.1991, moth bred 29.iv.1991 (RJH); Hollickwood Avenue, N12, larvae on *Tilia*, 1993 (KGVs); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Gunnersbury Park, old mines, windows, moulting cocoons, 15.x.1995 (RWJU); Natural History Museum Wildlife Garden, South Kensington, 2.vi.1997, 23.vii.1997 & 30.vii.1999 (MHo); Buckingham Palace Garden, first recorded 31.viii.1997, as leaf mines (CWP & AME); Holland Park, 11–19.v.1998 (TF); Brompton Cemetery, 23.vii.1998 (TF); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP); Hampton Court, 2002 — common on the limes in the various avenues (CWP).

This species was abundant on lime trees in East Ham during 1979, a matter of three or four kilometres from the Middlesex boundary; it is probable that Bob Heckford's South Kensington record could be pre-dated — if only anyone was looking!

274 *Bucculatrix ulmella* Zell.

Buckingham Palace Garden (Bradley & Mere, 1966); Hampstead, adults reared 4.vi.1983 (RAS det. ESB); Natural History Museum Wildlife Garden, South Kensington, 19.vii.1995, 31.vii.1995, 23.vii.1997 & 17.vi.1999 (MHo); Gunnersbury Park, old mines and windows, 15.x.1995 (RWJU); Old Park Wood, Harefield, windows and moulting cocoons, 22.x.1996 (RWJU); Holland Park, 15.v.1998 (TF); Tower Hamlets Cemetery, 2001 (CWP).

275 *Bucculatrix bechsteinella* (Bech. & Scharf.)

Bentley Priory, 8.x.1988 (AME); Long Wood, 5.v.1989 (JDB).

276 *Bucculatrix demaryella* (Dup.)

Osterley Park, 1987 (JDB).

ROESLERSTAMMIIDAE**447 *Roeslerstammia erxlebelli* (Fabr.)**

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield 17.v.1974 and 3.viii.1975 (DJLA); Hampstead, occasional (RAS); Osterley Park, 1987 (JDB); Holland Park, 15.v.–27.vii.1998 (TF).

GRACILLARIIDAE**281 *Caloptilia populetorum* (Zell.)**

Natural History Museum Wildlife Garden, South Kensington, 30.vii.1998 (MHo).

282 *Caloptilia elongella* (L.)

Ruislip (Minnion, 1959); Ken Wood, 30.ix.1981 and Hampstead, 24.ix.1983 (AME).

- 283 ***Caloptilia betulicola* (Hering)**
 Stanmore Common, 8.v.1965 (PAG photo); Buckingham Palace Garden, first recorded 1.vii.1976 (Carter, 2001); Hampstead Heath, adult reared from birch, emerged 14.x.1987 (RAS); Scratch Wood, 22.x.1981 (AME); Stanmore Common, 8.x.1988 (AME); Hampstead, 1998 (RAS).
- 284 ***Caloptilia rufipennella* (Hb.)**
 Dukes Meadows, Chiswick, cones rare on sycamore, 15.x.1995 (RWJU); Natural History Museum Wildlife Garden, South Kensington, 28.vi.1995 and also in subsequent years (MHo); Holland Park, 21.iv.1998 (TF); Brompton Cemetery, 14.vii.1997 and 21.iv.1998 (TF); Tower Hamlets Cemetery, 2001 (CWP).
- 285 ***Caloptilia azaleella* (Brants)**
 Buckingham Palace Garden, first recorded 18–20.ix.1974 (Carter, 2001); Osterley Park, 1987 (JDB); Hampstead, one at light 7.viii.1988 (RAS det. ESB); Hampton Court, 1998, cones on *Azalea* plants, moth bred (RJH).
- 286 ***Caloptilia alchimiella* (Steph.)**
 Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Stanmore Common, 3.vii.1965 [elongate costal blotch confirms] (PAG photo); Osterley Park, 1987 (JDB); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, 6.vi.1996 (MHo); Park Wood, Ruislip, 25.v.1997 (MH); Holland Park, 16.vii.1998 (TF); Highgate Wood, 1997, 1998, 1999 (MJH); Tower Hamlets Cemetery, 2001 (CWP).
- 287 ***Caloptilia robustella* Jäckh**
 Hampstead, 1987 (RAS); Osterley Park, 1987 (JDB); Stanmore Common, 8.x.1988 (AME); Buckingham Palace Garden, first recorded 11.vi.1996 (Carter, 2001); Denham Lock Wood, 1996 (CWP); Holland Park, 19.v. & 27.vii.1998 (TF); Brompton Cemetery, 20.vii.1998 (TF); Tower Hamlets Cemetery, 2001 (CWP).
- 288 ***Caloptilia stigmatella* (Fabr.)**
 Chiswick, larvae on *Populus nigra*, one reared 16.viii.1952 (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and leaf mines 31.viii.1997 (AME & CWP); Hampstead, 21.viii.1985 (RAS); Highgate Wood, 1987 (MJH); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, 1994 (JBL — det. conf. AME); Buckingham Palace Garden, at m.v. on 27.vi.1996 (DJC) and leaf mines on 31.viii.1997 (CWP & AME); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 289 ***Caloptilia falconipennella* (Hb.)**
 Buckingham Palace Garden, 31.x.1997, folds on *Alnus glutinosa* leaves (CWP/AME).
- 293 ***Caloptilia syringella* (Fabr.)**
 Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Harrow Weald, 11.v.1965; Chiswick, larvae on privet hedge 1955–70 (RWJU); Winchmore Hill, 1971 (DJLA); Hampstead, 1985 (RAS); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Long Wood, 22.vi.1989 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Natural History Museum Wildlife Garden, South Kensington, 12.v.2000 (MHo); Tower Hamlets Cemetery, 2001 (CWP).
- 294 ***Aspilapteryx tringipennella* (Zell.)**
 Ruislip (Minnion, 1959); Hampstead, 24.vii.1989 (RAS, det. DJLA from photo slide); Natural History Museum Wildlife Garden, South Kensington, 22.vii.1997 & in 1998 and 1999 (MHo); Brompton Cemetery, 28.vii.1998 (TF).
- 296 ***Calybites phasianipennella* (Hb.)**
 Buckingham Palace Garden, first recorded 24.vii.1981 (JDB); Natural History Museum Wildlife Garden, South Kensington 16.vi.1999 & 26.viii.1999 (MHo).
- 297 ***Calybites aurogutella* (Steph.)**
 Taken at Shirland Gardens, Paddington, in 1897 by H. Phillips (*Ent. Rec.* 10: 51); Osterley Park, 1987 (JDB).
- 299 ***Parectopa ononidis* (Zell.)**
 Scratch Wood, 23.x.1981 (AME).
- 301 ***Parornix betulae* (Stt.)**
 Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 24.vii.1972 (JDB); Hampstead, 1987 (RAS); Stanmore Common, 8.x.1988 (AME); Hounslow Heath, 17.vii.1990 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 27.vii.1998 (TF).

- 302 *Parornix fagivora* (Frey)
Buckingham Palace Garden, first recorded 11.viii.1975 (JDB).
- 302a *Parornix carpinella* Frey
Bentley Priory, 8.x.1988 (AME).
- 303 *Parornix anglicella* (Stt.)
Stanmore Common, forced 20.iii.1965 from larva in rolled hawthorn leaf (PAG photo); Harrow Weald, 11.v.1965 (RWJU); Buckingham Palace Garden, first recorded 6.viii.1979 (JDB) and mines common 1995–97 on *Crataegus* (CWP); Holland Park, 21.ix.1986 (CWP); Hampstead, 1987 (RAS); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Dukes Meadows, Chiswick, mines on hawthorn, 15.x.1995 (RWJU); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 304 *Parornix devoniella* (Stt.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, recorded between 1965 and 1969 (JDB) and then leaf mines on 31.viii.1997 (CWP & AME); Long Wood, 5.v.1989 (JDB); Tower Hamlets Cemetery, 2001 (CWP).
- 305 *Parornix scoticella* (Stt.)
Buckingham Palace Garden, first recorded 14.vii.1967 (DJB) and then leaf mines on 31.viii.1997 (CWP & AME); Enfield Highway bred *Malus* 18.iv.1972, bred *Sorbus aucuparia* 21.iv.1972 (DJLA); Hampstead, larval folds 1983 (RAS); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 308 *Parornix finitimella* (Zell.)
Hampstead, mines 1987 (RAS det. AME); Scratch Wood, 23.x.1988 (AME); Bentley Priory, 8.x.1988 (AME).
- 309 *Deltaornix torquilella* (Zell.)
Osterley Park, 1987 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).
- 310 *Callisto denticulella* Thunb.
Ruislip (Minnion, 1959); Chiswick, larvae on apple in garden, 1955–65 (RWJU); Enfield Highway bred 26.v & 8.vi.1980 (DJLA); Kensal Green Cemetery, 1994 (JBL — det. conf. AME); Buckingham Palace Garden, at m.v. on 15.vi.1995 (DJC) and leaf mines recorded on 31.viii.1997 (CWP & AME); Trent Park, mines, 31.viii.2001 (CWP).
- 313 *Acrocercops brongniardella* (Fabr.)
Hyde Park, 14.x.1982 — vacated mine (AME); Buckingham Palace Garden, mines on *Quercus* on 13.vi.1996 (DJC).
- 314 *Leucospilapteryx omissella* (Stt.)
Dukes Meadows, Chiswick, leaf mines, 1955–65 (RWJU); Holland Park, 21.ix.1986 — mined leaves (CWP); The Paddock, Tottenham Hale, 1997 — mined leaves (CWP); Chelsea Creek, 1998 (CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 315 *Phyllonorycter harrisella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and several records since, including mines (DJC, CWP, AME) and adults at m.v. on 1.vi., 8.vi., 6.vii and 13.vii.1995 (DJC); Holland Park, 21.ix.1986 (CWP); Hampstead, mines 1987 (RAS); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Highgate Wood, 1997, 1998 (MJH); Tower Hamlets Cemetery, 2001 (CWP).
- 317 *Phyllonorycter heegeriella* (Zell.)
Buckingham Palace Garden, leaf mines on 31.viii.1997 (CWP & AME); Stanmore Common, 8.x.1988 (AME); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, mines, 31.viii.2001 (CWP).
- 318 *Phyllonorycter tenerella* (Joannis)
Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Trent Park, mines, 31.viii.2001 (CWP).
- 320 *Phyllonorycter quercifoliella* (Zell.)
Ruislip (Minnion, 1959); Winchmore Hill, 1971 (DJLA); Holland Park, 21.ix.1986 (CWP); Hampstead, mines 1987 (RAS); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

321 *Phyllonorycter messaniella* (Zell.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and commonly since then (DJC); Harrow Weald, 11.viii.1965 (PAG photo); Winchmore Hill, 1971 (DJLA); Hampstead, mines 1987 (RAS); Osterley Park, 1987 (JDB); Stanmore Common, 8.x.1988 (AME); West Hampstead, 1993 (DR); Gunnersbury Park, pupa in mine on beech, 15.x.1995 (RWJU); Hyde Park, 1 on 25.vi.1996 (TF); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Holland Park, 11–19.v.1998 (TF); Brompton Cemetery, 19.v.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 28.vi.1995 then each year since [statement recorded January 2000] (MHo); Fulham Palace gardens (by day) 12.vii.1998 (MHo); Trent Park, mines, 31.viii.2001 (CWP).

321a *Phyllonorycter platani* (Stdgr.)

Imperial College, South Kensington, 27.x.1990 — new to Britain (AME: *Ent. Rec.* 103: 1); Gunnersbury Park, mine in car park, 15.x.1995 (RWJU); Buckingham Palace Garden, at m.v. on 3.viii.1995 (DJC) and leaf mines on 31.viii.1997 (CWP & AME); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); RAF Bentley Priory, 30.vi.1999 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

323 *Phyllonorycter oxyacanthae* (Frey)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and leaf mines on 31.viii.1997 (CWP & AME); Harrow Weald, moth forced 15.iii.1965 ex mine hawthorn (PAG); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, 30.vii.1999 (MHo); Tower Hamlets Cemetery, 2001 (CWP).

324 *Phyllonorycter sorbi* Frey

Hampstead (RAS); Holland Park, 21.ix.1986 (CWP); Stanmore Common, 8.x.1988 (AME).

325 *Phyllonorycter mespilella* (Hb.)

Mimmshall Wood, mines on wild service tree *Sorbus torminalis*, 21.xi.2001 (EG). Adults have not yet been reared and so the record is currently provisional.

326 *Phyllonorycter blancardella* (Fabr.)

Enfield Highway, bred, iv.1972 (DJLA); Osterley Park, 1987 (JDB); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964), then in the kitchen garden between 1965 and 1989 (JDB) and leaf mines probably of this species (rather than *cydoniella* (D. & S.)) on 31.viii.1997 (CWP & AME); Trent Park, mines almost certainly of this species but adults not bred, 31.viii.2001 (CWP).

327 *Phyllonorycter cydoniella* (D. & S.)

Hampstead, bred from apple, emerged 12.ix.1988 (RAS).

329 *Phyllonorycter spinicolella* (Zell.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1984 (RAS); Natural History Museum Wildlife Garden, South Kensington, 1.ix.1999 (MHo).

330 *Phyllonorycter cerasicolella* (H. - S.)

Enfield Highway bred iv.1972 (DJLA); Hampstead, 1983 (RAS); Holland Park, 21.ix.1986, mines on *Prunus padus* (CWP); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME).

331 *Phyllonorycter lantanella* (Schr.)

Gunnersbury Park, mines on a small planted shrub of *Viburnum lantana*, 15.x.1995 (RWJU).

332 *Phyllonorycter corylifoliella* (Hb.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and leaf mines on 31.viii.1997 (CWP & AME); Winchmore Hill, 1971 (DJLA); Hampstead, eg., 1983 (RAS); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

332a *Phyllonorycter leucographella* (Zeller)

Buckingham Palace Garden, 1990 (JDB) and mines in each of the years 1995 to 1997 (CWP; AJH); Holland Park, 15–19.v.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 19.v.1998 & 19.vi.1999 (MHo).

333 *Phyllonorycter salictella* (Zell.) ssp. *viminiella* (Sircom)

Enfield, bred, iv.1972 (DJLA).

335 *Phyllonorycter salicicolella* (Sircom)

Ruislip (Minnion, 1959).

- 341 ***Phyllonorycter maestingella* Müll.**
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and also leaf mines on 31.viii.1997 (CWP & AME); Stanmore Common, 25.iv.1965 (PAG photo); Holland Park, 21.ix.1986 (CWP); Hampstead, 1988 (RAS); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Fulham Palace Gardens (by day) 12.vii.1998 (MHo); Natural History Museum Wildlife Garden, South Kensington, 30.vii.1999 (MHo); Trent Park, mines, 31.viii.2001 (CWP).
- 342 ***Phyllonorycter coryli* Nic.**
Buckingham Palace Garden, between 1965 and 1989 (JDB) then leaf mines recorded 31.viii.1997 (CWP & AME); Stanmore Common, 8.v.1965 (PAG photo); Hampstead, mines — 1998 (RAS); Old Park Wood, Harefield, mines on nut, 22.x.1996 (RWJU).
- 343 ***Phyllonorycter quinnata* Geoff.**
Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME).
- 345 ***Phyllonorycter rajella* (L.)**
Buckingham Palace Garden, leaf mines on alders by The Lake, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead (RAS); Osterley Park, 1987 (JDB).
- 351 ***Phyllonorycter lautella* (Zell.)**
Scratch Wood, 5.vi.1965 (PAG photo).
- 352 ***Phyllonorycter schreberella* (Fabr.)**
Enfield, bred iv.1972 (DJLA); Hampstead (RAS); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Old Park Wood, Harefield, mines on elm, 22.x.1996 (RWJU).
- 353 ***Phyllonorycter ulmifoliella* (Hb.)**
Stanmore Common, forced 14.iii.1965 from mine on birch (PAG photo); Scratch Wood, 23.x.1982 (AME); Hampstead, 1984 (RAS); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Holland Park, 21.iv.1998 (TF).
- 354 ***Phyllonorycter emberizaepenella* Bouché E (loc. incog., 1982, AME)**
Mapped for Middlesex in *MBGBI* 2 (1985).
- 356 ***Phyllonorycter tristrigella* (Haw.)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); near Harrow Weald Common, 19.vi.1965 (PAG photo); Enfield, bred, iv.1972 (DJLA); Hampstead, 1984 (RAS); Holland Park, 21.ix.1986 (CWP); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP).
- 357 ***Phyllonorycter stettinensis* Nic.**
Hampstead, 1984 (RAS); Buckingham Palace Garden, leaf mines recorded 31.viii.1997 (CWP & AME).
- 358 ***Phyllonorycter froelichiella* (Zell.)**
Hampstead Heath, 24.x.1983 (AME); Buckingham Palace Garden, leaf mines recorded 31.viii.1997 (CWP & AME).
- 359 ***Phyllonorycter nicellii* (Stt.)**
Buckingham Palace Garden, between 1965 and 1989 (JDB) and then leaf mines recorded 31.viii.1997 (CWP & AME).
- 360 ***Phyllonorycter kleemannella* (Fabr.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, (Bradley & Mere, 1966) and then leaf mines recorded 31.viii.1997 (CWP & AME).
Hampstead, reared 1992 (RAS)
- 361 ***Phyllonorycter trifasciella* (Haw.)**
Stanmore Common, 4.x.1964 (PAG photo); Buckingham Palace Garden, first recorded 9.viii.1974 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 362 ***Phyllonorycter acerifoliella* (Zell.)**
Tower Hamlets Cemetery, 2001 (CWP).
- 363 ***Phyllonorycter platanoidella* Joannis**
Buckingham Palace Garden, leaf mines recorded 31.viii.1997 (CWP & AME); Hampstead, mines on *Acer campestre*, 1990 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

364 *Phyllonorycter geniculella* (Ragonot)

Gunnersbury Park, mines on sycamore 15.x.1965 (RWJU); Enfield, bred, iv.1972 (DJLA); Buckingham Palace Garden, first recorded 16.vii.1982, and leaf mines recorded 31.viii.1997 (CWP & AME); Hampstead, 1984 (RAS); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Denham Lock Wood, 1996 (CWP); Chelsea Creek, 1998 (CWP); RAF Bentley Priory, 30.vi.1999 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

367 *Phyllocnistis saligna* (Zell.)

Chiswick, on *Salix*, no date, [presumed the year of the journal publication = 1925] (A. Sich. *Ent. Rec.* 37: 97).

368 *Phyllocnistis unipunctella* (Steph.)

Buckingham Palace Garden, first recorded 22.viii.1979 (JDB); Hampstead, 1986 (RAS); Dukes Meadows, Chiswick, mines on Lombardy poplars, 15.x.1995 (RWJU); Kensal Green Cemetery, mines, 1994 (JBL — det. conf. AME); Natural History Museum Wildlife Garden, South Kensington, 19.vi.2000 (MHo); Trent Park, mines, 31.viii.2001 (CWP).

CHOREUTIDAE**385 *Anthophila fabriciana* (L.)**

Ruislip (Minnion, 1959); Enfield, bred, v–vi.1979 (DJLA); Hollickwood Avenue, N12, 1986 (KGVs); Osterley Park, 1987 (JDB); Potters Bar, 1993 (JK); Hampstead, 1989, 3–31.viii.1989, not previously seen in August (RAS); Long Wood, 22.vi.1989 (JDB); Denham Lock Wood, 1996 (CWP); Brompton Cemetery, 30.v.1998 (TF); Chelsea Creek, 1998 (CWP); Copsewood, Ruislip, 24.v.1998 (MZ); Natural History Museum Wildlife Garden, South Kensington, 16.vi.1999 (MHo); RAF Bentley Priory, 30.vi.1999 (CWP); Hampstead, 10.ix.2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

[387 *Prochoreutis sehestediana* (Fabr.)

Reported for Ruislip by Minnion (1959). Up to 1939 this species and the next, 388: *P. myllerana* (Fabr.) were regarded as one. Thereafter, confusion persisted because Pierce (*Entomologist* 72: 257–260 & Fig. 1) in separating the two listed a character that has since proven unreliable. *Prochoreutis sehestediana* is not mapped for Middlesex in *MBGBI* 2 (1985) — but *P. myllerana* is, though flagged as unconfirmed. The source of the *MBGBI* record is not known but it is unlikely to be Minnion's Ruislip list since many of his other species are also not included in the volumes of *MBGBI*. On this basis, it would seem wise to regard the position of *sehestediana* on the Middlesex list as provisional, unless the voucher specimen can be found and examined.]

[388 *Prochoreutis myllerana* (Fabr.)

The unconfirmed record given for Middlesex given in *MBGBI* 2 (1985) is discussed above under 387: *P. sehestediana*.]

389 *Choreutis pariana* (Cl.)

Hampstead Heath, web on apple 1987, adults emerged 5.x.1987 (RAS).

GLYPHIPTERIGIDAE**391 *Glyphipterix simpliciella* (Steph.)**

Ruislip (Minnion, 1959); Scratch Wood, 5.vi.1965 (PAG photo); Buckingham Palace Garden, first recorded 11.v.1989, although emergence holes in *Dactylis glomerata* presumed to belong to this species were seen in 1988 (JDB); Denham Lock Wood, 1996 (CWP).

393 *Glyphipterix equitella* (Steph.)

Chiswick, c.1900/1920 (ASi)

396 *Glyphipterix fuscoviridella* (Haw.)

Ruislip (Minnion, 1959); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

470 *Orthotaelia sparganella* (Thunb.)

Wraysbury — east bank of reservoir, vi.1987 (SC, det. PHS).

YPONOMEUTIDAE**401 *Argyresthia laevigatella* (H.-S.)**

Enfield (Whitewebbs Park), bred, 5.vi.1972 (DJLA).

403 *Argyresthia glabratella* (Zell.)

Osterley Park, 1987 (JDB).

405 *Argyresthia arceuthina* (Zell.)

Mapped for Middlesex in *MBGBI* 3 (1996).

407a *Argyresthia cupressella* Wals.

Holland Park, 31.vi.1998 (TF). This American species was added to the European list from south-east Suffolk during 1997 (see Emmet & Agassiz. *Ent. Gaz.* 50:11–16).

409 *Argyresthia ivella* (Haw.)

Enfield Highway, 18.vii.1972 (DJLA); Buckingham Palace Garden, first recorded 6.vii.1966 (JDB).

409a *Argyresthia trifasciata* Stdgr.

Hampstead, 3.vi.1982, at actinic light on a balcony — new to Britain (RAS: *vide Ent. Rec.* 94: 180–182); Natural History Museum Wildlife Garden, South Kensington, 19.v.1999 & 12.v.2000 (MHo).

410 *Argyresthia brockeella* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, 1982 (RAS); Highgate Wood, 1996 (MJH); Denham Lock Wood, 1996 (CWP).

411 *Argyresthia goedartella* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Winchmore Hill, 1971 (DJLA); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Highgate Wood, 5.viii.1989 and also 1995 (MJH); Chiswick Triangle N. R., 1993 (incog.); Highgate Wood, at m.v.l., 21.vii.1995 (MJH det. CWP); Buckingham Palace Garden, at m.v. on 3.viii.1995 (DJC); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 3–22.viii.1997 (TF); Hampstead, 2000 (RAS); Neasden, 10.viii.2000 (AS).

412 *Argyresthia pygmaeella* (Hb.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964).

414 *Argyresthia curvella* (L.)

Ruislip (Minnion, 1959); Hampstead, an adult found in grass under an apple tree, 4.vi.1989 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Pinner, on an apple tree, 1998 (MZ — det. CWP).

415 *Argyresthia retinella* (Zell.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield, bred, 31.v & 25.vi.1975 (DJLA); Hampstead Heath, 13.vi.1982 (RAS det. DJLA); Hollickwood Avenue, N12, 21.vi.1991 (KGVS det. CWP); Natural History Museum Wildlife Garden, South Kensington, 16.vi.1999, 18.vi.1999, 14.vi.2000 & 19.vi.2000 (MHo).

416 *Argyresthia glaucinella* (Zell.)

Harrow Weald, common, vii.1965 (P. A. Goddard) in colln. DJLA.

417 *Argyresthia spinosella* (Stt.) = *mendica* (Haw.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Hampstead, occasional (RAS); Crouch End, an adult disturbed from *Prunus spinosa* on 31.v.1994 (DH det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

418 *Argyresthia conjugella* (Zell.)

Hyde Park, a few on 25.vi.1996 (TF).

419 *Argyresthia semifusca* (Haw.)

Ruislip (Minnion, 1959); Enfield Highway 5.ix.1972 (DJLA); Buckingham Palace Garden, 4.iv.1987 (DJC).

420 *Argyresthia pruniella* (Cl.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–1997 (Carter, 2001); Winchmore Hill, 1971 (DJLA); Hampstead, 11.viii.1990 (RAS); Buckingham Palace Garden, at m.v. on 13.vii.1995 (DJC).

421 *Argyresthia bonnetella* (L.) = *curvella* auct.

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1965 and 1989 (JDB); Winchmore Hill, 1971 (DJLA); Enfield 28.vii.1975 (DJLA); Hampstead, 17.viii.1987 (RAS); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 20.vi.2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

422 *Argyresthia albistria* (Haw.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Holland Park, one on 22.viii.1997 (TF).

- 423 *Argyresthia semitestacella* Curt.
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB).
- 424 *Yponomeuta evonymella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield Lock, 1975 (DJLA); Enfield Highway 2.vii.1976 (DJLA); Alexandra Palace, 1989 (NB); Highgate Wood, 16.vii.1989 (MJH); Hampstead, 5.vii–7.viii.1989 — 100 seen in this period, including 11 on 9.vii., 14 on 11.vii. and 31 on 17.vii. — since then only a few each year with a peak of six between 3 & 7.vii.1993 (RAS); Hyde Park, 1993 (TF); Brompton Cemetery, 1 on 2.vii.1993 (TF); Buckingham Palace Garden, at m.v. on 13.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hyde Park, 1 at end of June 1996 (TF); Holland Park, 29.vi.1994 (TF); Brompton Cemetery, 1997 (TF); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 425 *Yponomeuta padella* (L.)
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield Lock, 1975 (DJLA); Enfield Highway 29.vii.1977 (DJLA); Hampstead, regular (RAS); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) — probably this species; Hampstead, 2000 (RAS).
- 426 *Yponomeuta malinellus* (Zell.)
Chiswick, webs on garden apple trees, 1950–65 (RWJU); Hollickwood Avenue, N12, one on 4.viii.1990 (KGVS det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 427 *Yponomeuta cagnagella* (Hb.)
Chiswick, webs on *Euonymus japonica* hedge, 1950–65 (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Winchmore Hill, 1971 and Enfield Highway 1978–79 (DJLA); Hampstead, regular (RAS); Holland Park, 1986 (CWP); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) & 31.viii.2000 (MHo).
- 428 *Yponomeuta rorrella* (Hb.)
Hampstead, 19, 20, 24 & 28.vii.1989 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 431 *Yponomeuta sedella* (Tr.)
Ruislip (Minnion, 1959); Enfield 25.vii.1978 (DJLA).
- 435 *Zelleria hepariella* (Stt.)
Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 436 *Pseudoswammerdamia combinella* (Hb.)
Ruislip (Minnion, 1959).
- 437 *Swammerdamia caesiella* (Hb.)
Ruislip (Minnion, 1959); Enfield Lock, 1972, and Enfield Highway, 1972 (DJLA); Hampstead, 1974 and reared from larvae on birch in 1984 (RAS); Denham Lock Wood, 1996 (CWP); Old Park Wood, Harefield, spinings on birch, 22.x.1996 (RWJU).
- 438 *Swammerdamia pyrella* Vill.
Chiswick, ex pupa 4.v.1955 (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Winchmore Hill, 1972 (DJLA); Enfield Highway, common, 1972 and bred *Malus* 1980 (DJLA); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 440 *Paraswammerdamia albicapitella* Scharf.
Enfield, bred, 8.vii.1977 (DJLA); Hampstead, 7.vii.1987 (RAS).
- 441 *Paraswammerdamia lutarea* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Winchmore Hill, 1971 and Enfield, bred 20–22.vi.1977, etc. (DJLA); Hampstead, 1982, 1983, 1988 (RAS); Osterley Park, 1987 (JDB); Hounslow Heath, 17.vii.1990 (JDB); Holland Park, 6–16.vii.1998 (TF).
- 442 *Cedestis gysseleniella* (Zell.)
Enfield Lock, 22.vii.1972 and Whitewebbs Park, bred 27.v.1976, 16 & 28.iv.1980 (DJLA).

- 443 *Cedestis subfasciella* (Steph.)
Enfield (Whitewebbs Park) bred 6.vi.1975 (DJLA).
- 445 *Ocnerostoma friesei* Svens.
Enfield (Trent Park) (4) 1.v.1975 (DJLA).
- 447 **After 276**
- 449 *Prays fraxinella* (Bjerk.)
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Harrow Weald, Copse Farm, 15.vi.1964 (RWJU); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); West Hampstead, 1993 (DR); Buckingham Palace Garden, at m.v. on 27.vi.1996 (DJC); Denham Lock Wood, 1996 (CWP); Hyde Park, 25.vi.1996 (TF); Hounslow Heath LNR, vi.1997 (JH); Holland Park, 15–19.v.1998 (TF); Brompton Cemetery, 19.v.–18.vi.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 11.vi.1999, 19.vi.1999 & 8.vii.1999 and May and June 2000 (MHo); Hampstead, 16.vi.2000 (RAS).
- 449a *Prays citri* (Millière)
Natural History Museum Wildlife Garden, South Kensington, 9.v. 2000. **New to Britain** (Honey, in prep.)
- 450 *Scythropia crataegella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 23.vi.1976 (JDB); Enfield 11.vii.1977 (DJLA); Osterley Park, 1987 (JDB); Hampstead, at light, 15.vi.1989 (RAS); Hyde Park, 25.vi.1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).
- 452 *Ypsolopha nemorella* (L.)
Stanmore Common 3.viii.1954 (PAG photo); Ruislip (Minnion, 1959).
- 453 *Ypsolopha dentella* (Fabr.)
Ruislip (Minnion, 1959); Harrow Weald, waste ground by Uxbridge Road, 14.viii.1964 (PAG photo); Buckingham Palace Garden, first recorded 18.vii.1967 (JDB); Winchmore Hill, 1971 & 1972 and Enfield Highway, 1971, 1972 and 28.vii.1977 (DJLA); Hampstead, occasional, but not every year (RAS); Hodford Road, Child's Hill, 10.vii.1990 (NB); Highgate Wood, 1992 (MJH); Denham Lock Wood, 1996 (CWP); Potters Bar, 1996 (JK); Hampstead, 20.viii.2000 (RAS).
- 455 *Ypsolopha scabrella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and at m.v. on 10.vii.1995 (DJC); Winchmore Hill, 1975 and Enfield Highway, 16.vii.1979 (DJLA); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 27.vii.1998 (TF); Hampstead, 2000 (RAS).
- 456 *Ypsolopha horridella* (Tr.)
Buckingham Palace Garden, first recorded 18.vii.1967 (JDB); Hampstead, larva on *Prunus spinosa* — adult reared, 1977 (RAS); Fir & Pond Wood, bred, *Malus*, 10–12.vii.1977, 25.vii.1978, 28.vii.1978, 8.viii.1978 (DJLA).
- 457 *Ypsolopha lucella* (Fabr.)
Mapped for Middlesex in *MBGBI* 3 (1996).
- 458 *Ypsolopha alpella* (D. & S.)
Harrow Weald (Brookshill), 24.vii.1965 (PAG); Winchmore Hill, 1971 (DJLA); Fir & Pond Wood bred 19.vi.1976, 19.viii.1979 (DJLA); Hampstead Heath & Ken Wood, regular, bred ex oak in 1980 (RAS); Osterley Park, 1987 (JDB); Holland Park, 19.xi.1998 (TF); Brompton Cemetery, 20–28.vii.1998 (TF).
- 459 *Ypsolopha sylvella* (L.)
Buckingham Palace Garden, 24.viii.1978 (JDB); Osterley Park, 1987 (JDB).
- 460 *Ypsolopha parenthesella* (L.)
Ruislip (Minnion, 1959); Harrow Weald, 9.viii.1964 (PAG photo); Winchmore Hill, 1971 (DJLA); Enfield 18.vi.1976 (DJLA); Hampstead, 1984 (RAS); Osterley Park, 1987 (JDB); Highgate Wood, 1987 and 5.viii.1989 (MJH); Denham Lock Wood, 1996 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 461 *Ypsolopha ustella* (Cl.)
Ruislip (Minnion, 1959); Fir & Pond Wood, 18.ix.1975, bred 19.vi.1976, 7.ix.1977, 9.vii.1980 (DJLA); Hampstead, 1983 (RAS); Copse Wood, Ruislip, 2.xi.1996 — 1 at m.v.l. (MH).

462 *Ypsolopha sequella* (Cl.)

Ruislip (Minnion, 1959); Stanmore Common, 5.ix.1965 (PAG photo); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and at m.v. on 8.viii.1996 (DJC); Osterley Park, 1987 (JDB); Tottenham Cemetery, 21.viii.1990 (NB); Hampstead, regularly since 1982 (to 1989) from 7.vii to 2.x, more than usual in 1989 (RAS); West Hampstead, 1.vii.1994 (DR); Holland Park, 18–22.ix.1998 (TF); Brompton Cemetery, 28.vii. and 17.ix.1998 (TF); Highgate Wood, 1992 (MJH); West Hampstead, 1.viii.1997 (DR); Natural History Museum Wildlife Garden, South Kensington, 6.viii.1999 (MHo); Neasden, recorded from 28.vii. and 21.viii.2000 (AS); Hampstead, 1998 (RAS).

463 *Ypsolopha vittella* (L.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Harrow Weald (Brookshill), larva 26.v.1965, moth at light 4.viii.1965 (PAG photos); Winchmore Hill, 1971 (DJLA); Enfield 30.vii.1974, 6.vii.1978 (DJLA); Hampstead, 22.vii.1984 (RAS); Hampstead, 1998 (RAS).

251 *Ochsenheimeria taurella* (D. & S.) = *mediopectinellus* (Haw.)

Kingsbury [as *birdella*], in Stainton's *Manual* page 287. Bonhote & Rothschild's *Harrow Butterflies and Moths* states 'There are many records from Kingsbury in Stainton's *Manual*, which the late Mr Stainton got from Mr Bond.'; Enfield 1.ix.1977 (DJLA).

252 *Ochsenheimeria urella* (Fischer von Rösl.)

Reported from Kingsbury by 'Mr Bond' in Stainton's *Manual* p. 287.

[253 *Ochsenheimeria vacculella* Fischer von Rösl.

This species is mapped for Middlesex in *MBGBI* 2 (1985) on the basis of the record in *Ent. mon. Mag.* 43: 255. However, the only reference to the species in that literature reference seems to be for Richmond Park, which is in Surrey. This species must, therefore, be deleted from the Middlesex list.]

464 *Plutella xylostella* (L.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield Highway variable numbers 1971–80 (DJLA); Kensal Green, 1981 (MHy); Holloway, dead in light fitting, 1988 (NB, det. CWP); Hampstead, at light on 13.vii.1989, the only one this year (RAS); Ealing, 1990 (PAB); Hollickwood Avenue, N12, 24.vii.1990 (KGVS); West Hampstead, 1993 (DR); Highgate, 1994 (MJH); Buckingham Palace Garden, at m.v. on 6.vii & 13.vii.1995 (DJC); Denham Lock Wood, 1996 (CWP); Hampstead, 20.vii to 25.viii then 2, 10 and 12.x 1997 — all small numbers except 8 and 9.viii. when 38 and 11 respectively (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Hyde Park, end of June to mid July 1996, very common (TF); Brompton Cemetery, 30. vii. 1997 and 31.iii–23.vii.1998 (TF); Holland Park, 21.viii–23.ix.1997, v.–vii.1998 (TF); Highgate Wood, 1992, 1994 (MJH); Hampstead, 1998 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

465 *Plutella porrectella* (L.)

Ruislip (Minnion, 1959); Harrow Weald (at light), 24.viii.1964 (PAG); Winchmore Hill, 5.viii.1971 (DJLA); Natural History Museum Wildlife Garden, South Kensington, 11.vi.1999 (MHo).

469 *Eidophasia messingiella* F.v.R.

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 13.vii.1978 (DJLA); Long Wood, 22.vi.1987 (JDB); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Holland Park, 16.vi.1998 (TF).

470 now in *Glyphipterigidae* — after 396**471 *Digitivalva perlepidella* (Stt.)**

Buckingham Palace Garden, at m.v. on 27.vi.1996 (DJC).

476 *Acrolepia autumnitella* Curtis

Holland Park, 21.ix.1986 (CWP); Kensal Green Cemetery, feeding in woody nightshade, 1994 (JBL — det. conf. AME); Penzance Street (by Holland Park), 26.iv.1998 (TF); Fulham Palace Gardens (by day) 12.vii.1998 (MHo); Tower Hamlets Cemetery, 2001 (CWP).

481–485 (*Epermeniidae* & *Schreckensteiniidae*) now positioned after the *Tortricidae*, below 1287**LYONETIIDAE****254 *Leucoptera laburnella* (Stt.) (including 255. f. *wailesella* (Stt.))**

Chiswick, mines in garden laburnum, 1955–70 (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Holland Park, 21.ix.1986 (CWP); Kensal Green Cemetery, mines, 1994 (JBL — det. conf. AME); Highgate Wood, 1.viii.2000 f. *wailesella* (Stt.) ♀ det. CWP (MJH).

- 256 *Leucoptera spartifoliella* (Hb.)
Near Stanmore Common, 24.vii.1965 (PAG photo).
- 259 *Leucoptera lotella* (Stt.)
Mapped for Middlesex in MBGBI 2 (1985).
- 260 *Leucoptera malifoliella* (Costa)
Ealing [as *scitella*], mines on whitethorn, 6.ix.[1910] (A. Sich. *Ent. Rec.* 22: 222–223).
- 263 *Lyonetia clerkella* (L.)
Mines on apple in garden, Chiswick, 1955–69 (RWJU); Dukes Meadows, Chiswick, mine on cherry, 15.x.1995 (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Kensal Green, 1981 (MHy); Hampstead, every year (RAS); Holland Park, 21.ix.1986 (CWP); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Long Wood, 22.vi.1989 (JDB); Hollickwood Avenue, N12, larvae on apple, 1993 & 1994 (KGVS); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Gunnersbury Park, mines on hybrid crab and domestic apple 15.x.1995 (RWJU); Highgate, at m.v.l., vii.1995 (MJH det. CWP); Buckingham Palace Garden, at m.v. on 28.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, 19.vii.1995 and every year since (MHo); Holland Park, 3.vi.–27.vii.1998 (TF); Brompton Cemetery, 23.vii.1998 (TF); Highgate Wood, 1994, 1997, 1998 (MJH); Denham Lock Wood, 1996 (CWP); Fulham Palace Gardens (by day) 12.vii.1998 (MHo); Hampstead, vii.2000 (RAS); Trent Park, mines, 31.viii.2001 (CWP).
- 264 *Bedellia somnulentella* (Zell.)
Buckingham Palace Garden, 12.ix.1979 (JDB); Hampstead, 1.xi.1983 (RAS); Kensal Green Cemetery, mines — 1994 (JBL — det. conf. AME); Gunnersbury Park, Chiswick, mining larvae, 15.x.1995 (RWJU); Dukes Meadows, Chiswick, mining larvae, 15.x.1995 (RWJU).

COLEOPHORIDAE

- 490 *Coleophora lutipennella* (Zell.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and at m.v. on 27.vi.1996 (DJC); Hampstead, bred from oak, 4.vii.1983 (RAS); Osterley Park, 1987 (JDB); Gunnersbury Park, larval cases 15.x.1995 (RWJU); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 491 *Coleophora gryphipennella* (Hb.)
Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME).
- 492 *Coleophora flavipennella* (Dup.)
Stanmore Common, pair in cop., 17.vii.1965 (PAG); Hampstead, bred, 4.vii.1983 (RAS det. ESB); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Tower Hamlets Cemetery, 2001 (CWP).
- 493 *Coleophora serratella* (L.)
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Stanmore Common, overwintered case on birch 11.iv.1965 (PAG photo); Enfield, common, early 1970s, bred (DJLA); Hampstead Heath, empty cases on birch, 29.vii.1982 (RAS det. AME); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Fir and Pond Wood NR, 8.vi.1995 (JRL).
- 494 *Coleophora coracipennella* (Hb.)
Hampstead, bred 5.vii.1983 (RAS det. ESB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 495 *Coleophora spinella* Schr.
Buckingham Palace Garden, first recorded 2.viii.1974 (JDB).
- 496 *Coleophora milvipennis* Zell.
Highgate, 1857, *Enigma* 28 ‘a *Coleophora* larva similar to *limosipennella*, feeding on birch’, collected by Mr Shield (*Ent. Ann.* 1858: 114); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); One case with cut-out and first case on birch sapling, Old Park Wood, Harefield, 22.x.1996 (RWJU).
- 496a *Coleophora adjectella* H.-S.
Mapped for Middlesex in MBGBI 3 (1996).
- 497 *Coleophora badiipennella* (Dup.)
Hyde Park, cases on elm, 1958 (all felled after Dutch elm disease) (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964).

[498] *Coleophora alnifoliae* Barasch

Mapped for Middlesex in *MBGBI* 3 (1996). See discussion under species number 499, below.]

[499] *Coleophora limosipennella* (Dup.)

Buckingham Palace Garden, 'v. and vi. fairly common, L. on elm, alder and birch' (Bradley & Mere, 1964). The foodplant data given is nonsense, and has clearly been copied from another source. The species then known as *limosipennella* is now known to comprise three — 499, *limosipennella* sensu stricto (larvae on elm), 498, *alnifoliae* (larvae on alder) and 496, *milvipennis* (larvae on birch). The last is included on the Middlesex list on the basis of the valid records given above. However, the exact nature of the Buckingham Palace record is open to question and it could in fact relate to any one of the three. Carter (2001) repeats the record without comment. Ridiculous though it may seem, neither *alnifoliae* Barasch nor *limosipennella* (Dup.) can be reliably added to the Middlesex list until voucher material has been located and dissected.]

502 *Coleophora trigeminella* Fuchs

Reared ex hawthorn, Brentford, vi.1906 (A. Sich), new to Britain (Banks, E.R., 1912. *Ent. mon. Mag.* 23: 51–56), see also (Whitebread, *Ent. Rec.* 87: 300).

503 *Coleophora fuscocuprella* H.- S.

Larvae near Highgate, 1859 (Miller, *Ent. Intelligencer* 7: 31).

504 *Coleophora lusciniapennella* (Tr.)

Stainton, 1859; Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME).

509 *Coleophora violacea* (Ström)

Mapped for Middlesex in *MBGBI* 3 (1996), apparently on the strength of the record [as *paripennella*] from 'near London' given in Stainton's *Manual*, 1860, page 386) and on a record made by Maitland Emmet of which details are not available.

511 *Coleophora orbitella* Zell.

Stanmore Common, larval case on birch stem 24.x.1965 (PAG photo).

512 *Coleophora binderella* (Kollar)

Cases on nut, Chiswick, 1907 (ASi); Stanmore Common, overwintered young case on birch, 15.iv.1965 (PAG photo).

515 *Coleophora albitarsella* Zell.

'Here' [i.e. Corney House, Chiswick] 1903 (A. Sich. *Ent. Rec.* 15: 290).

516 *Coleophora trifolii* (Curtis)

Buckingham Palace Garden, first recorded 22.vi.1973 (JDB); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, a male at m.v. light emitted meconium later, 8.vii.2001 (RAS).

517 *Coleophora alcyonipennella* (Kollar) = *frischella* auct., nec Linnaeus

? Ruislip (Minnion, 1959). Many old records of '*alcyonipennella*' relate to 560: *paripennella* Zeller (*q.v.*). Although Bill Minnion's list specifically refers to *alcyonipennella* of Kollar, elsewhere in his list are a few mistakes in the attribution of authorities. It cannot be stated with absolute certainty whether his record relates to our present understanding of *Coleophora alcyonipennella* (Kollar) or if it relates to *paripennella* Zeller. The specimen needs to be found and dissected. Old Fox Res., Ealing, 20.vii.1975 (JDB); Osterley Park, 1987 (JDB).

518 *Coleophora mayrella* (Hb.)

Buckingham Palace Garden, first recorded 20.vii.1971 (JDB); Winchmore Hill, 1971 and Enfield Highway, 1972 (DJLA).

519 *Coleophora deauratella* Lienig & Zell.

Enfield Highway, 1972 and Whitewebbs Wood, Enfield, 1972 (DJLA); Natural History Museum Wildlife Garden, South Kensington, 30.vi.1998 (MHo).

522 *Coleophora lineolea* (Haw.)

Ruislip (Minnion, 1959); Dukes Meadows, Chiswick, cases xi.1960 (RWJU); Enfield Highway cases common on *Stachys lanata*, bred 1970s, Enfield Lock, cases on *Ballota nigra* 20.iv.1975 (DJLA); Buckingham Palace Garden, 17.vi.1976 (JDB); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, 26.vii.1999 (MHo).

523 *Coleophora hemerobiella* (Steph.)

Hammersmith, larvae on pear, plum, cherry in orchard, May, (Stainton, H. T., 1854. *Insecta Britannica*); Chiswick [by deduction], several winter cases, 6 May 1903 (Sich, *Ent. Rec.* 15:290); Hounslow Heath and Osterley Park, cases v.1963 (RWJU); Enfield, bred, *Malus*, 3.viii.1977 & vii.1983 (DJLA); Buckingham Palace Garden, first recorded 9.viii.1974 (JDB); Natural History Museum Wildlife Garden, South Kensington, 1.viii.2000 (MHo).

- 524 ***Coleophora lithargyrinella* Zell.**
Northwood, 1902, [as *olivaceella*] — one case, from which a moth was bred (H. J. Turner. *Ent. Rec.* 15: 92).
- 525 ***Coleophora solitariella* Zell.**
Recorded from Kingsbury by 'Mr Bond' in Stainton's *Manual*, p. 384 (1859).
- 526 ***Coleophora laricella* (Hb.)**
Enfield (Whitewebbs Park), bred 8.vi.1972 (DJLA); Buckingham Palace Garden, 17.vi.1981 (JDB); Copse Wood, Ruislip, case, xi.2000 (RWJU); *BENHS* 15: 36.
- 532 ***Coleophora albidella* (D. & S.)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964).
- 533 ***Coleophora anatipennella* (Hb.)**
Headstone, Harrow, larval case, 23.vi.1965 (PAG photo); Hampstead, larva on *Prunus spinosa*, emerged 10.vii.1980 (RAS).
- 535 ***Coleophora ibipennella* (Zell.) = *ardeapennella* Scott**
Enfield 28.vii.1980 — dissected (DJLA); Osterley Park, 1987 (JDB).
- 536 ***Coleophora betulella* Pierce & Metcalfe = *ibipennella* ss. auctt. nec Zeller**
The records of *Coleophora ibipennella* for Ruislip (Minnion, 1959) and Buckingham Palace Garden (Bradley & Mere, 1964) are considered to belong to this species, because at those dates the name *ibipennella* could scarcely have meant anything else. The species is mapped for Middlesex in *MBGBI* 3 (1996) on the basis of a record made by Maitland Emmet, but the details are currently not available.
- 537 ***Coleophora kuehnella* (Goeze)**
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB).
- 539 ***Coleophora conspicuella* (Zell.)**
Enfield Highway 28.vii.1978 (DJLA).
- 541 ***Coleophora pyrrhulipennella* (Zell.)**
Natural History Museum Wildlife Garden, South Kensington, 17.vii.1998 — introduced with Dorset heath & 25.vi.1999 — ?bred (MHo).
- 544 ***Coleophora albicosta* (Haw.)**
Ruislip (Minnion, 1959); near Harrow Weald Common, 13.vi.1965, male genitalia det. (PAG photo); Buckingham Palace Garden, 6.vi.1966 (JDB); Stanmore Common and Bentley Priory, cases, 16.vi.1988 (RWJU).
- 545 ***Coleophora saturatella* Stt.**
Hampstead Heath (*Ent. Wkly. Intell.* 7:207); Hounslow Heath, 17.vii.1990 (JDB).
- 546 ***Coleophora genistae* Stt.**
Recorded for Middlesex in Stainton's *Manual* (AME pers. comm.) and this is the basis of the dot on the distribution map in *MBGBI* 3 (1996). AME considered (1998) this species now to be extinct in Middlesex.
- 550 ***Coleophora silenella* H.-S.**
Ruislip (Minnion, 1959).
- 552 ***Coleophora lassella* Stdgr.**
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 553 ***Coleophora striatipennella* Tengström. = *striatipennella* Nylander sensu Bradley, 2000, British checklist**
Stanmore, disused railway bank, 12 & 18.vi.1965 (PAG photo); Bentley Priory, cases 27.viii.1988 (RWJU); Natural History Museum Wildlife Garden, South Kensington, 9.vi.1999 & 18.vi.1999 (MHo).
- 555 ***Coleophora follicularis* (Vallot)**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964).
- 556 ***Coleophora trochilella* (Dup.)**
Buckingham Palace Garden, first recorded 18.viii.1961 (JDB); Natural History Museum Wildlife Garden, South Kensington, 5.vii.1999 (MHo).
- 559 ***Coleophora peribenanderi* Toll**
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1966) and 1995–1997 (Carter, 2001); Stanmore railway embankment, case on *Cirsium arvense*, 17.vi.1965 (PAG photo); Enfield Highway 18.vii.1978 (DJLA).

- 560** *Coleophora paripennella* Zell. (= *alcyonipennella* auct.)
?Ruislip (Minnion, 1959) — see comments under 517: *C. alcyonipennella* (Kollar). Stanmore, disused railway embankment, em. ex cases 20.vii.1965 (PAG).
- 562** *Coleophora asteris* Mühlig
Natural History Museum Wildlife Garden, South Kensington, 26.viii.1999 (MHo).
- 563** *Coleophora argentula* (Steph.)
Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield Highway 27.vii.1978 (DJLA); Lampton Park, 1981 (AME); Bentley Priory, 8.x.1988 (RWJU); Hampstead, cases on heads of *Achillea millefolium*, 1988 (RAS); Tottenham Railway Triangle, larval cases 9.x.1995 (CWP); Hounslow Heath LNR, cases on *Achillea millefolium* 29.i.1998 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 1998 (RAS).
- 565** *Coleophora saxicolella* (Dup.)
Chiswick, vii.1961, (male genit. det. RWJU); Enfield Highway 11.vii & 14.viii.1972, 22.vii.1979 (DJLA).
- 566** *Coleophora sternipennella* (Zett.)
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Chiswick, vii.1961 (female genit. det. RWJU); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield, 8 & 22.viii.1971, 7.ix.1978, 6 & 8.viii.1979 (DJLA); Osterley Park, 1987 (JDB).
- 568** *Coleophora versurella* Zell.
Chiswick, reared from *Chenopodium album*, 1.viii.1963 (male genit. det. RWJU); Buckingham Palace Garden, first recorded 22.vi.1973 (JDB); Enfield Highway 23.vii.1977 (DJLA); Osterley Park, 1987 (JDB).
- 577** *Coleophora artemisicolella* Bruand
Near Duke's Meadows, Chiswick, larvae common on *Artemisia vulgaris*, c.1960 (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Enfield Highway 9.viii.1978 (DJLA).
- 578** *Coleophora otidipennella* (Hb.)
Hampstead Heath 17.v.1884, JMC-H colln., det. RWJU; Poor's Field, Ruislip Common, 1 moth 5.v.2001 (RWJU)
- 581** *Coleophora taeniipennella* H.-S.
Buckingham Palace Garden, between 1965 and 1989, but no further data available (Carter, 2001).
- 582** *Coleophora glaucicolella* Wood
Buckingham Palace Garden, first recorded 10.vii.1970 (JDB); Osterley Park, 1987 (JDB); Hounslow Heath, 17.vii.1990 (JDB).
- 583** *Coleophora tamesis* Waters
Buckingham Palace Garden, first recorded 2.vii.1971 (JDB).
- 584** *Coleophora alticolella* Zell.
Ruislip (Minnion, 1959) — see comments under 587, *C. caespititiella* (Zell.), below; Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Stanmore Common, around *Juncus effusus*, 13.vi.1965 (PAG); Scratch Wood, 5.vi.1965 (female genit. det. PAG); Highgate Wood, at m.v.l., 1994 and 21.vii.1995 and again in 1997 (MJH det. CWP); Hounslow Heath LNR, cases on *Juncus effusus* 29.i.1998 (CWP); Natural History Museum Wildlife Garden, South Kensington, 13.v.1997 (MHo).
- 587** *Coleophora caespititiella* Zell.
Buckingham Palace Garden, 15.vi.1976 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo). It is also listed for Ruislip (Minnion, 1959) — but the (now) much more frequent 584, *Coleophora alticolella* (Zell.), which was formerly called *caespititiella* sensu auctorum (*nec* Zeller) is not listed by Minnion. Although it is not clear to which species this record refers, the generally held view amongst the senior entomologists is that *alticolella* (Zell.) was probably the species involved.
- 588** *Coleophora salicorniae* Hein. & Wocke
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 589** *Coleophora clypeiferella* Hofmann
Chiswick, female swept, 25.vii.1960 — larvae common on *Chenopodium album* with *C. saxicolella*, *C. sternipennella*, *C. versurella* in 1960s round allotments by the Chery Blossom boot polish factory, now a dense housing estate (RWJU); Buckingham Palace Garden, 9.viii.1967 (JDB).

ELACHISTIDAE

596 *Elachista poae* Stt.

Mapped for Middlesex in *MBGBI* 3 (1996).

597 *Elachista atricomella* Stt.

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Stanmore railway embankment, 19.vi.1965 (female genit. det. PAG and photo).

600 *Elachista luticomella* Zell.

Buckingham Palace Garden, first recorded 28.vi.1968 (JDB).

601 *Elachista albifrontella* (Hb.)

Ruislip (Minnion, 1959); Harrow Weald, waste ground by Uxbridge Road, 26.vi.1964, 13.vi.1965 (PAG).

602 *Elachista apicipunctella* Stt.

Mapped for Middlesex in *MBGBI* 3 (1996).

607 *Elachista canapennella* (Hb.)

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–1997 (Carter, 2001); Osterley Park, 1987 (JDB).

608 *Elachista rufocinerea* (Haw.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Harrow Weald Common, 18.v.1964 (PAG photo); Enfield 8.v.1975 (DJLA); Hampstead, 1985 (RAS); Long Wood, 5.v.1989 (JDB); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, 4.v.1999 (MHo).

609 *Elachista monosemiella* Rössler (= *maculicerusella* Bruand sensu Bradley, 2000, British checklist)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 3.vi.1970 (JDB; Carter, 2001); Enfield Highway and Hackney Marsh, 1972, and Enfield Lock, 1975 (DJLA).

610 *Elachista argentella* (Cl.)

Ruislip (Minnion, 1959); Stanmore railway embankment, 4.vi.1965 (PAG photo); Hampstead, 1982 (RAS); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, 18.v.1999 and several dates in v.2000 (MHo); Hampstead, 2000 (RAS).

611 *Elachista triatomea* (Haw.)

Stanmore railway embankment, 19.vi.1965 (PAG photo); Enfield, 26.vi.1977 (DJLA).

625 *Biselachista cinereopunctella* (Haw.)

Mapped for Middlesex in *MBGBI* 3 (1996).

630 *Biselachista albidella* (Nyl.)

Enfield, 20.vii.1972 (DJLA).

631 *Cosmiotes freyerella* (Hb.)

Mapped for Middlesex in *MBGBI* 3 (1996).

632 *Cosmiotes consortella* (Stt.)

Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

OECOPHORIDAE

638a *Denisia albimaculea* (Haw.)

Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 8.vi. & 14.vi.2000 (MHo).

637 *Crassa tinctella* (Hb.)

Osterley Park, 1987 (JDB).

640 *Batia lunaris* (Haw.)

Ruislip (Minnion, 1959); Enfield Highway 8.vii.1975, 16.vii.1979 (DJLA); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Hollickwood Avenue, N12, 14.viii.1990 and vi.1992 (KGVS det. CWP); Buckingham Palace Garden, at m.v. on 29.vi.1983 (JDB) and 6.vii. & 13.vii.1995 (DJC); Hyde Park, a few mid-July 1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 23.vii.1998 (TF); Highgate Wood, 1998 (MJH); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

642 *Batia unitella* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 3.viii.1975 (DJLA); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); West Hampstead, 1993 (DR); Highgate Wood, at m.v.l., 21.vii.1995 (MJH det. CWP); Hyde Park, one, mid July 1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

644 *Borkhausenia fuscescens* (Haw.)

Hampstead, 1984 & 4.vii.1991 (RAS); Enfield Highway, 8.vii.1975 (DJLA); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo).

646 *Telechrysis tripuncta* (Haw.)

Headstone, Harrow, 22.vi.1965 (PAG photo).

647 *Hofmannophila pseudospretella* (Stt.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Chiswick, 1950s and 1960s (RWJU); Harrow Weald, 10.vi.1965 (PAG photo); Fulwell Golf Course, 1970 (DSH); Heston, 1971 (DSH); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield Highway and Winchmore Hill, 1971 (DJLA); North Hanwell, 1980 (IJK); Kensal Rise, 1980 (MHy); Kensal Green, 1981 (MHy); Osterley Park, 1987 (JDB); Highgate Wood, most years 1987 to 1999 (MJH); Holloway, dead in light fitting, 1988 (NB, det. CWP); Finsbury Park, 1989 (NB); Hampstead, 1989 — the bulk in July (RAS); Wood Green, 13.viii.1990 (NB); Tottenham Hale, 2.v.1990 (NB); Potters Bar, 1993, 1996 (JK); Hollickwood Avenue, N12, regular in 1990 (KGVS det. CWP); West Hampstead, 1993 (DR); Sunbury, 1994 (DP); Regent's Park, 1994 (JK); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 3.vi.1998 (TF); Brompton Cemetery, 18.vi.–28.vii.1998 (TF); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Tower Hamlets Cemetery, 2001 (CWP).

648 *Endrosis sarcitrella* (L.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Chiswick, 1950s and 1960s (RWJU); Harrow Weald, Brookshill Drive, 22.v.1965 (PAG photo); Enfield Highway 1971–1980, bred from pigeons' nests 1976 (DJLA); Kensal Rise, 1980 (MHy); Kensal Green, 1981 (MHy); Hampstead, 1986 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Tottenham Hale, 5.v.1990 (NB); Potters Bar, 1993, 1996 (JK); Hollickwood Avenue, N12, various dates in 1990 (KGVS); West Hampstead, 1993 (DR); Sunbury, 1994 (DP); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Neasden, 1998 (AS); Brompton Cemetery, 8.vi.1998 (TF); Highgate Wood, 1998 (MJH); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Tower Hamlets Cemetery, 2001 (CWP).

649 *Esperia sulphurella* (Fabr.)

Ruislip (Minnion, 1959); Chiswick, breeding in dead wood of privet hedge, 1950s and 1960s (RWJU); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); South Kensington Station, 1960 (IJK); Enfield, 1978 (ECP-C); Dove Mews, SW5, common 1979 to 1981 (SAKJ); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 10.v.1990 (KGVS); Crouch End, larva under 'sallow' bark, 15.ii.1995 (DH); Queen's Wood, larvae under 'oak' bark, 20.xi.1994, adults emerged ii.1995 (DH); Grove Lodge, adult from 'oak', 18.v.1995 (DH); Coldfall Wood, adult on 18.v.1995 (DH); Buckingham Palace Garden, 13.vi.1996 on *Populus* (DJC); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 1998 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

652 *Alabonia geoffrella* (L.)

Ruislip (Minnion, 1959); Scratch Wood, 5.vi.1965 (PAG photo); Potters Bar, 23.v.1993 (JK).

653 *Aplota palpellus* (Haw.)

The type locality of this species is 'London' and it is included in Middlesex in the maps in *MBGBI 4* on this basis. I have not yet had time to investigate the precise locality within London to confirm the insect's Middlesex status.

656 *Tachystola acroxantha* Meyr.

Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and on 12.v. (4), 8.vi. (1) and 19.vi. (4) 2000 (MHo).

658 *Carcina quercana* (Fabr.)

Ruislip (Minnion, 1959); Chiswick, at light 1950s and 1960s (RWJU); Stanmore Common, 24.vii.1965 (PAG photo); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Fulwell Golf Course, 1970 (DSh); Enfield Highway and Winchmore Hill, 1971 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Kensal Green, 1981 (MHy); Hampstead, regular, usually from late vii, except in 1993 when one appeared on 27.vi then no more until 7.viii; late date of 11.xi.1995 is only record here after September (RAS); Osterley Park, 1987 (JDB); Coppets Wood, 30.vii.1988 (KGVS); Finsbury Park, 1989 (NB); Highgate Wood, 16.vii.1989 (MJH); Gutteridge Wood, 26.viii.1993 — 3 at m.v. (MH); Highgate, 1994 (MJH); Wood Green, 13.viii.1990 (NB); Tottenham Hale, 2.viii.1990 (NB); St Anne's Hospital, Tottenham, 13.viii.1990 (NB); Potters Bar, 1990 (JK); West Hampstead, 1993 (DR); Queen's Wood, at m.v. light on 29.vii.1994 (DH det. CWP); Highgate Wood, most years 1989 to 1999 (MJH); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 3.viii.1997 (TF); Hounslow Heath LNR, 1997 (JH); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 17.ix.1998 (TF); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

877 *Stathmopoda pedella* (L.)

Two specimens taken by E. J. Twist at West End, Hampstead, in 1861 (*Ent. Wkly Intell.* 10: 131), and two more taken in the same locality on 7.vi.1867 by the brother of Percy C. Wormald (*Ent. mon. Mag.* 4: 90).

660 *Pseudatemelia josephinae* (Toll)

Stanmore Common, 24.vii.1965, confirmed by genitalia (PAG photo); Stanmore Common, 1965 (PAG; *SLENHS* 1966: 121); Osterley Park, 1987 (JDB).

661 *Pseudatemelia flavifrontella* (D. & S.)

Stanmore Common, Heathbourne Road, ovipositing in fence, gen. det. (PAG photo).

[662] *Pseudatemelia subochreella* (Doubt.)

A specimen labelled 'Barnet / Middlesex / 27.5.44 / SWakely/Ex coll SWakely' is in the University Museum of Zoology, Cambridge, and is the source of the Middlesex 'dot' in *MBGBI* volume 4. However, Barnet is in fact in Hertfordshire and so this record cannot be retained on the Middlesex list.]

663 *Diurnea fagella* (D. & S.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Harrow Weald Common Road, pair in cop. after dark, 10.iv.1965 (PAG photo); Stanmore Common, larva on birch, 7.x.1965 (PAG photo); Enfield 1.iv.1972 (DJLA); Copse Wood and Park Wood, Ruislip, 1979 (AMG det. BG); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Highgate Wood, 1987 (MJH); Stanmore Common, 8.x.1988 (AME); West Hampstead, iii.1994 (DR); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 2.iii.1998 (JH); Holland Park, 27.iii.1998 (TF); Park Wood, Ruislip, 15.iii.1998 (MZ); Hampstead, 28.ii.2000 (RAS).

664 *Diurnea lipsiella* (D. & S.) = *phryganella* (Hb.)

Harrow Weald Common Road, male flying around female, 17.x.1964 (PAG photo); Stanmore Common, male 24.x.1965 (PAG photo); Mad Bess Wood, 23.x.1982 (AMG); Copse Wood, Ruislip, 2.xi.1996 — 1 at m.v.l. (MH).

670 *Depressaria daucella* (D. & S.) = *Depressaria nervosa* of older literature

Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and at m.v. on 28.vii.1995 (DJC); Chelsea Creek, larvae abundant on *Oenanthe crocata* 1998 and adults bred (CWP).

672 *Depressaria pastinacella* (Dup.)

Chiswick, larvae spinning *Heracleum* umbels, 1950s and 1960s (RWJU); Ruislip (Minnion, 1959); Hampstead, occasional (RAS); Osterley Park, 1987 (JDB).

674 *Depressaria badiella* (Hb.)

Enfield Highway, 19.ix.1976 & 30.viii.1977 (DJLA); Hampstead, 5.ix.1990 (RAS det. CWP).

676 *Depressaria pulcherrimella* (Stt.)

Included in the maps for *MBGBI* 4 on the basis of a record that was, apparently, extracted from an unknown source by the late Denzil Ffennell, but he didn't leave the details.

678 *Depressaria sordidatella* Tengst. = *weirella* (Stt.)

Hampstead, 10.vii.1988, adult emerged from collected *Anthriscus* (RAS).

688 *Agonopterix heracliana* (L.)

Ruislip (Minnion, 1959); Mill Hill, 1960 (BG); near Stanmore Common 2.iii.1966 (PAG photo); Mill Hill (light), 7.iii.1966, genit. det. (PAG photo); Hampstead, 1986 (RAS); Hollickwood Avenue, N12, regular in 1990 (KGVS det. CWP); Buckingham Palace Garden, 14.x.1966 (JDB) and at m.v. on 11.iv. & 18.iv. 1996 (DJC); Denham Lock Wood, 1996 (CWP); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

689 *Agonopterix ciliella* (Stt.)

Hollickwood Avenue, N12, 6.viii.1989 (KGVS).

692 *Agonopterix subpropinquella* (Stt.)

Fulham, 1985 (Burge); Osterley Park, 1987 (JDB); Hampstead, 22.iv.1993 (RAS).

695 *Agonopterix alstromeriana* (Cl.)

Ruislip (Minnion, 1959); Enfield, 1976 (DJLA); West Drayton, 17.ii.1984 — one in house (MH); Hampstead, 1985 (RAS); Long Wood, 5.v.1989 (JDB); Hollickwood Avenue, N12, 16.iii.1990 (KGVS); Hounslow Heath, 17.vii.1990 (JDB); Buckingham Palace Garden, at m.v. on 13.vii.1995 (DJC); Denham Lock Wood, 1996 (CWP); Hounslow Heath LNR, 12.iii.1997 (JH); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); West Drayton, 4.ii.1997 (MH); Hampstead, 1998 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

696 *Agonopterix propinquella* (Tr.)

Hollickwood Avenue, N12, 18.v.1990 (KGVS).

697 *Agonopterix arenella* (D. & S.)

Ruislip (Minnion, 1959); Harrow Weald/Stanmore Common, 1964 (*SLENHS* 1964: 26); Harrow Weald, 1.vi.1965 (PAG photo); Stanmore Common, 16.iii.1966 (PAG photo); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 2.iv.1990, 10.v.1993 and 22.viii.1993 (KGVS); Potters Bar, 1996 (JK); Brompton Cemetery, 4.vi.1998 (TF); Hampstead, 2000 (RAS).

698 *Agonopterix kaekeritziana* (L.)

A record from the late Denzil Ffennell is included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid, but the details are unknown.

701 *Agonopterix ocellana* (Fabr.)

Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Wraysbury — east bank of reservoir, vi.1987 (SC, det. PHS); Hollickwood Avenue, N12, 22.vii.1989 (KGVS).

702 *Agonopterix assimilella* (Tr.)

Bentley Priory, 8.x.1988 (AME).

706 *Agonopterix nervosa* (Haw.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Mill Hill, 1960 (BG); Harrow Weald, at light, 3.viii.1965 (PAG photo); Chiswick, annually at light, 1950s and 1960s (RWJU); Hampstead, regular [1980s] (RAS); Fulham, 25.vi.1987 (JB); Hampstead, 2000 (RAS).

708 *Agonopterix carduella* (Hb.)

A record from the late Denzil Ffennell was included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid, though the details are unknown and the record is not mapped in *MBGBI* 4.

709 *Agonopterix liturosa* (Haw.)

Hillingdon, 1988 (AMG det. CWP).

710 *Agonopterix conterminella* (Zell.)

Mill Hill, 1960 (BG).

713 *Agonopterix angelicella* (Hb.)

Hillingdon, 1988 (AMG det. CWP).

714 *Agonopterix yeatiana* (Fabr.)

Mapped for Middlesex in *MBGBI* 4 (2002) — details unknown.

GELECHIIDAE**724 *Metzneria lappella* (L.)**

Included for Middlesex in the maps in *MBGBI* 4 (2002).

726 *Metzneria metzneriella* (Stt.)

Ruislip (Minnion, 1959); Harrow Weald, female at light, 30.vi.1965 (PAG photo); Stanmore, railway embankment, 1.vii.1965 (PAG photo); Enfield, 16.vii.1977 (DJLA); Hampstead, 17.vii.1999 (RAS — det. CWP).

- 728 *Monochroa cytisella* (Curtis)
Included for Middlesex in the maps in MBGBI 4 (2002).
- 729 *Isophrictis striatella* (D.& S.)
Old Fox Res., Ealing, 20.vii.1975 (JDB); Buckingham Palace Garden, 22.viii.1978 (JDB); Enfield 20.vii & 11.viii.1972 (DJLA); Stanmore Common, 8.x.1988 (AME); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 732 *Eulamprotes unicolorella* (Dup.)
Fir and Pond Wood NR, 8.vi.1995 (JRL & DJLA).
- 735 *Monochroa tenebrella* (Hb.)
Enfield, 16.vii.1979 (DJLA).
- 736 *Monochroa lucidella* (Steph.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid. Hornsey, 1 on 5.vii.2001 (MA det. CWP).
- 737 *Monochroa palustrella* (Douglas)
Enfield 20.vii.1972, 20.ix.1976 (DJLA); Hampstead, actinic light on balcony, 24.vii.2001 (RAS).
- 740 *Monochroa hornigi* (Stdgr.)
Buckingham Palace Garden, first recorded vi.1961 (JDB), new to Britain, subsequently noted in 1963 (JDB), 1984 and 1987 (DJC)(Carter, 2001); Enfield Highway, 14.vii.1979 (DJLA).
- 742 *Monochroa lutulentella* (Zell.)
Winchmore Hill, 28.vii.1971 (DJLA).
- 746 *Chrysoesthia drurella* (Fabr.)
Chiswick, 1.vii.1954 (RWJU); Enfield Highway, 1974–76, bred 3.v.1976 (DJLA); Kensal Green Cemetery, 1994 (JBL — det. conf. AME); Natural History Museum Wildlife Garden, South Kensington, 2.viii.1995 (Honey *et al.*, 1998).
- 747 *Chrysoesthia sexguttella* (Thunb.)
Buckingham Palace Garden, 20.v.1970 (JDB); Holland Park, 21.ix.1986 (CWP); Kensal Green Cemetery, 1994 (JBL — det. conf. AME).
- 748 *Ptocheuusa paupella* (Zell.)
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 752 *Aristotelia ericinella* (Zeller)
Ruislip (Minnion, 1959); Natural History Museum Wildlife Garden, South Kensington, 27.vii.2000 (MHo).
- 779 *Bryotropha affinis* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 4.vii.1965 (JDB); Harrow Weald (light), 29.vii.1965 (PAG photo); Stanmore (m.v. light), 14.vii.1965 (PAG photo); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 2000 (RAS).
- 780 *Bryotropha similis* (Stt.)
Buckingham Palace Garden, between 1961 and 1963 (Bradley & Mere, 1964); Osterley Park, 17.viii.1987 (JDB).
- 782 *Bryotropha senectella* (Zell.)
Buckingham Palace Garden, first recorded 21.vii.1969 (JDB).
- 786 *Bryotropha desertella* (Doug.)
Enfield Highway, 2.viii.1977 (DJLA).
- 787 *Bryotropha terrella* (D.& S.)
Ruislip (Minnion, 1959); Park Wood, Hillingdon, 7.viii.1965 (PAG photo); Stanmore (m.v. light), 3.viii.1965 (PAG photo); Harrow Weald, waste ground by Uxbridge Road, 13.vi.1965 (PAG photo); Hampstead, 24.vii.1991 (RAS det. CWP); Buckingham Palace Garden, 1961–1963 (Bradley & Mere, 1964) and 1995–1997 (Carter, 2001); Enfield, 1971 (DJLA); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 16.vii.1998 (TF); Fir and Pond Wood NR, 8.vi.1995 (JRL).
- 789 *Bryotropha domestica* (Haw.)
Enfield, 1971 (DJLA); Buckingham Palace Garden, first recorded 18.ix.1978 (Carter, 2001); Colherne Court, SW5, one taken on 8.viii.1981 (SAKJ); Hampstead, 1986 (RAS det. ESB); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 24.vii. & 3.viii.1990 (KGVS det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 2000 (RAS).

- 755 *Stenolechia gemmella* (L.)
Ruislip (Minnion, 1959); Winchmore Hill 26.viii.1971 (DJLA); Hampstead, 1984 (RAS det. ESB); Osterley Park, 1987 (JDB).
- 756 *Parachronistis albiceps* (Zell.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield Highway 14.vii.1976 (DJLA); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 — larva on bud of hazel — very early date (JDB); Hyde Park, 1 on 25.vi.1996 (TF).
- 757 *Recurvaria nanella* (D.& S.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Stanmore (Coledale Road), 30.vii.1965 (PAG photo); Harrow Weald (Belsize Road), 20.vii.1965 (PAG photo); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 1998 (RAS).
- 758 *Recurvaria leucateella* (Cl.)
Stanmore Common, 24.vii.1965 (PAG photo).
- 759 *Coleotechnites piceaella* (Kearfott)
Pinner, 11.vi.1952 (WEM) — the first British record (*SLENHS* 1953–54: 36). The date has been erroneously published in at least one place as July, but the label on the specimen, which is in the Natural History Museum, reads '11.vi.1952' (M. Honey, pers. comm.); Harrow Weald, 20.vii.1965 (PAG) — the third British record. This latter was not taken 'on Stanmore Common' as stated by Ellerton (1970), but to m.v. light in the first-floor window of PAG's house (69 Weighton Road), and was actually found running about on the ceiling! (1966. *Bull. AES* p.88). Curiously this species is omitted from Middlesex in the map in *MBGBI* 4 (2002).
- 761 *Athrips tetrapunctella* Thunb.
Hyde Park, 1 on 19.vi.1996 (TF).
- 762 *Athrips mouffetella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 25.vii.1975 (JDB); Hampstead, 1984 (RAS det. ESB).
- 764 *Pseudotelphusa scalella* (Steph.)
Ruislip (Minnion, 1959); Highgate Wood, 1999 (MJH det. CWP).
- 766 *Altenia scriptella* (Hb.)
Included in the maps *MBGBI* 4 (2002) on the basis of Stainton's note that it was common all around London (1856. *The natural history of the Tineina*). It is apparently no longer present here.
- 765 *Teleiodes vulgella* (Hb.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Stanmore Common 17.vii.1965 (PAG photo); Harrow Weald (Brookshill), 17.vi.1965 (PAG photo); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).
- 774 *Teleiodes luculella* Hb
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Buckingham Palace Garden, vii.1996 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Park Wood, Ruislip, 15.vi.1996 and 25.v.1997 (MH); Holland Park, 16.vi.–6.vii.1998 (TF); Fulham Palace Gardens (by day) 12.vii.1998 (MHo); Highgate Wood, 1999 (MJH); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP); Hampstead, 25.vii.1999 (RAS det. CWP).
- 767 *Carpatolechia decorella* (Haw.)
Included for Middlesex in the maps in *MBGBI* 4 (2002).
- 768 *Carpatolechia notatella* (Hb.)
Included for Middlesex in the maps in *MBGBI* 4 (2002).
- 770 *Carpatolechia proximella* (Hb.)
Ruislip (Minnion, 1959); Whitewebbs Wood, Enfield, 22.vii.1972 (DJLA).
- 771 *Carpatolechia alburnella* (Zell.)
Stanmore Common, 17.vii.1965 (PAG photo); Park Wood, Hillingdon, 7.viii.1965 (PAG photo); Buckingham Palace Garden, first recorded 8.viii.1975 (Carter, 2001).
- 772 *Carpatolechia fugitivella* (Zell.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Harrow Weald (Brookshill), 27.vi.1965; Headstone, Harrow,

22.vi.1965 (PAG photo); Winchmore Hill and Enfield Highway, 1972 (DJLA); Hampstead, 20.viii.1983 (RAS det. ESB); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 16.vi.1998 (TF); Hampstead, 7.vii.1999 (RAS det. CWP).

776 *Teleiopsis diffinis* Sattl.

Ruislip (Minnion, 1959); Enfield Highway, 1972 (DJLA); Southall, 26.vi.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 19.v.1998 (TF).

779 – 789 genus *Bryotropha*, after 752

790 *Chionodes fumatella* (Douglas)

Included for Middlesex in the maps in *MBGBI* 4 (2002).

859 *Psoricoptera gibbosella* (Zell.)

Ruislip (Minnion, 1959); near Harrow Weald Common, 31.vii.1965 (PAG); Fir & Pond Wood 30.vii.1974, bred 9.vii.1977 (DJLA).

792 *Mirificarma mulinella* (Zell.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill 18.vii.1971 (DJLA); Colherne Court, SW5, one taken on 8.viii.1981 (SAKJ); Hampstead, 15.vii.1984 & 11.viii.1990 (RAS); Osterley Park, 1987 (JDB).

796 *Aroga velocella* (Zell.)

Winchmore Hill, 9.viii.1971 (DJLA); Buckingham Palace Garden, 16.vii.1976 (JDB); Brompton Cemetery, 28.vii.1998 (TF).

797 after 854

799 *Neofriseria singula* (Stdgr.)

Fir & Pond Wood, 10.vii.1984, bred 8.vii.1985 (DJLA) and 8.vi.1995 — several larvae on *Rumex acetosella*, apparently only on plants on anthills (JRL & DJLA).

800 *Gelechia rhombella* (D. & S.)

Ruislip (Minnion, 1959); Enfield, bred 8.vii.1977 (DJLA); Buckingham Palace Garden, 27.vi.1966 (JDB); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 'annual' (RAS – 1984).

801 *Gelechia scotinella* H. – S.

Included for Middlesex in the maps in *MBGBI* 4 (2002).

801a *Gelechia senticetella* (Stdgr.)

Holland Park, one on 27.vii.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 1.viii.2000 (MHo); Buckingham Palace Garden, 16.viii.2001 (Carter, 2001).

802 *Gelechia sabinella* (Zell.)

Winchmore Hill, 15, 23 & 28.viii.1971 — new to Britain (Agassiz, *Ent. Gaz.* 29:136–138).

802a *Gelechia sororculella* (Hb.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Stanmore Common, ex pupa spun sallow catkin, 3.vii.1965 (PAG photo); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

804 *Gelechia cuneatella* Doug.

Stainton (1854. *The Entomologist's Companion*) lists Hackney Marshes, ix.1853, 'among willows by Mr. Boyd'. In counting this record for Essex (*Essex Naturalist* (new series) 6: 88), the late Maitland Emmet noted that the captor was 'more probably T. Boyd than his cousin W. C. Boyd'. The boundary between the vice-counties of Middlesex and South Essex at that place follows the old course of the River Lea and in modern times all of the area referred to as Hackney Marshes lies firmly on the Middlesex side of the line. There can, however, be no doubt that in 1853 the Lea Vally was a somewhat different place to now! Willows undoubtedly spread across both sides of the river and if the moth was a resident there on one side it was probably on the other side too and no doubt Maitland felt that this justified his territorial claim over the moth. This species is, however, now reclaimed for Middlesex!

806 *Gelechia nigra* (Haw.)

Stanmore Common, birch trunk 17.vii. 1965, aspen trunks 19.vii, 27.vii.1965 (PAG photos); Hampstead, 21.vii.1991 (RAS det. CWP).

807 *Gelechia turpella* (D. & S.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and at m.v. on 13.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

809 after 868

- 814 *Scrobipalpa ocellatella* (Boyd)
Buckingham Palace Garden, 11.viii.1975 (DJC); Enfield 25.vii.1976 (DJLA).
- 815 *Scrobipalpa nitentella* (Fuchs)
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 816 *Scrobipalpa obsoletella* (Fischer von Rösl.).
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill, 15.viii.1971, Enfield Highway, 25.v & 4.vii.1972 (DJLA); Hampstead, 1986 (RAS); Camley Street Nature Park, 3.vi.1986 (RAS det. KS); Hampstead, 2000 (RAS).
- 818 *Scrobipalpa atriplicella* (Fischer von Rösl.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway 1972, 1973, 1976 (DJLA).
- 819 *Scrobipalpa costella* (Humph. & Westw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–1963 (Bradley & Mere, 1964); Winchmore Hill, Enfield, 1971 and Enfield Highway, bred v.1978 (DJLA); Hampstead, 1986 & 4.vii.1990 (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, iii.1989 (KGVS det. CWP); Crouch End, adult beaten from *Prunus spinosa*, 31.v.1994 (DH det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Mad Bess Wood, 2.xi.1996 (MH); Hyde Park, 1 on 19.vi.1996 (TF); Holland Park, 16.vi.1998 (TF); Hampstead, 1998 (RAS).
- 822 *Scrobipalpa acuminatella* (Sircom)
Buckingham Palace Garden, 26.vii.1967 (JDB); Hampstead Heath, 24.ix.1983 (AME); Kensal Green Cemetery, ‘creeping thistle’ 1994 (JBL — det. conf. AME); Parliament Court, Hampstead, 1 in light trap on balcony, 12.v.1998 (RAS).
- 825 *Phthorimaea operculella* (Zell.)
Jacobs (*Ent. Rec.* 70: 57) in an editorial note, comments that this species was bred from potatoes imported from Malta to the East India Dock in June 1935 and again from similar potatoes in the Regent’s Canal Dock in July 1938.
- 830 *Caryocolum fraternella* (Douglas)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Mill Hill, larva in spinning, 1966 (PAG photo); Osterley Park, 1987 (JDB); Fir & Pond Wood, bred, *Stellaria media* vi.1977 & vi.1988 (DJLA).
- 831 *Caryocolum proximum* (Haw.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and subsequently, including larvae in spun florets of *Stellaria media* on 13.vi.1996 (Carter, 2001); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 834 *Caryocolum tricolorella* (Haw.)
Mill Hill (Natl. Inst. Med. Res. sports field), larva and spinnings, 21.iv.1966 (PAG photo).
- 840 above 870
- 841 *Sophronia semicostella* (Hb.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1966).
- 843 *Aproaerema anthyllidella* (Hb.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway, 1972 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB).
- 847 *Syncopacma taeniolella* (Zell.)
Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 844/ *Syncopacma larseniella* (Gozm.) / *cinctella* (Cl.)
- 849 Minnion (1959) records ‘*cinctella*’ from Ruislip. Minnion did not check the genitalia of his material and so this record cannot be reliably attributed to that species.
- 853 *Anacamptis populella* (Cl.)
Hampstead, 2.viii.1990 (RAS det. CWP); Hollickwood Avenue, N12, 20.viii.1991 (KGVS); Highgate Wood, at m.v.l., 21.vii.1995 (MJH det. CWP); Buckingham Palace Garden, at m.v. on 28.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 854 *Anacamptis blattariella* (Hb.)
Hampstead, 6.viii.1983 (RAS det. ESB from 35mm photo slide).
- 797 *Neofaculta ericetella* Geyer
Ruislip (Minnion, 1959); Hampstead, at actinic light on 12.vii.1995 (RAS).

- 856 *Anarsia spartiella* (Schr.)
Winchmore Hill, 28.viii.1971 (DJLA); Buckingham Palace Garden, 24.vii.1972 (JDB).
- 858 *Hypatima rhomboidella* (L.)
Ruislip (Minnion, 1959).
- 859 after 790
- 862 *Dichomeris marginella* (Fabr.)
Hampstead, 1984 (RAS); Ken Wood, 1982 and 1984 (RAS det. ESB); Buckingham Palace Garden, first recorded 23.vii.1969 (JDB) then at m.v. on 6.vii. & 13.vii.1995 (DJC).
- 866 *Brachmia blandella* (Fabr.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Stanmore railway embankment 1.viii.1965; Whitewebbs Wood, 1972 and Enfield Lock, 1972 (DJLA); Osterley Park, 1987 (JDB); Hampstead, 7.vii.1984 & 23.vii.1991 (RAS det. CWP).
- 868 *Helcystogramma rufescens* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1997–97 (Carter, 2001); Stanmore railway embankment, 3.vii, 10.viii.1965 (PAG photos); Chiswick, 30.vi.1958, 24.vi.1964 (RWJU); Whitewebbs Wood, Enfield Highway and Enfield Lock, all 1972 (DJLA); Hampstead, 1986, adults and larvae found (RAS); Osterley Park, 1987 (JDB); Hampstead, 2000 (RAS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 809 *Pexicopia malvella* (Hb.)
Chiswick, garden, 8.vii.1952, 28.vi.1953 (det. S. Wakely) (RWJU); Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Ken Wood, 7.vii.1999 (RAS det. CWP).
- 840 *Thiotricha subocellea* (Stephens)
Natural History Museum Wildlife Garden, South Kensington, 26.vii. 2001 (MHo).

AUTOSTICHIDAE

- 870 *Oegoconia quadripuncta* (Haw.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and at m.v. on 27.vi.1996 (DJC); Hollickwood Avenue, N12, 7.viii.1973 & 21.vii.1990 (KGVS det. CWP); Enfield Highway, 1972, 1975 and 1976 (DJLA); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 19.vii.2000 (MHo); Holland Park, 16.vi.1998 (TF).
The record from Ruislip (Minnion, 1959) pre-dates our modern understanding of this species complex and so cannot be accepted unless the voucher specimen is dissected.
- 871 *Oegoconia deauratella* (H.- S.)
Chiswick, end vi. 1953 (RWJU); Harrow Weald (light), 10.vii.1965, 20.vii.1965, genitalia det., new to GB, (PAG photos); Buckingham Palace Garden, 20.vii.1995 (DJC); Hollickwood Avenue, N12, 26.vii.1994 (KGVS det. CWP); Enfield, one in 1977, one in 1978 and three in 1979 (DJLA).
- 871a *Oegoconia caradjai* Popescu-Gorg & Capuse.
Hollickwood Avenue, N12, 31.vii.1990 (KGVS det. CWP); Holland Park, 7.vii.1998 (TF).
- 872 *Symmoca signatella* (H.- S.)
An introduced species, included in the map in *MBGBI* 4 on the strength of a record from ‘near the London Docks’; the late Maitland Emmet recorded this as Middlesex. The only other British record is from Leicestershire.

BLASTOBASIDAE

- 873 *Blastobasis lignea* Walsingham
Ruislip (Minnion, 1959); Stanmore (m.v. light) 30.vii, 1.viii, 3.viii.1965 (PAG photos); Chiswick, frequent at light 1950s and 1960s (RWJU); Winchmore Hill, Enfield Highway and Enfield Lock, 1971 and Whitewebbs Wood, Enfield, 1972 (DJLA); Hampstead, 1986 (RAS); Hollickwood Avenue, N12 — 11.viii.1991 and 14.vii.1994 (KGVS); Queen’s Wood, at m.v. light on 29.vii.1994 (DH det. CWP); Highgate Wood, most years 1990 to 1999, and numerically common (MJH); Buckingham Palace Garden, extremely common 1995 to 1997 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Brompton Cemetery, 23.vii.–17.viii.1998 (TF); Hampstead, 2000 (RAS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

874 *Blastobasis decolorella* (Wollaston)

Hampstead, 1986 (RAS); Fulham, 29.vi.1987 (JB); Wraysbury — east bank of reservoir, vii.1987 (SC, det. PHS); Finsbury Park, 1989 (NB); Hounslow Heath, 17.vii.1990 (JDB); Hollickwood Avenue, N12 — regular in 1990 and 1991 (KGVS); West Hampstead, 1993 (DR); Highgate Wood, at m.v.l., 21.vii.1995 (MJH det. CWP); Buckingham Palace Garden, first recorded 18.vi.1969 (JDB) and very common 1995–97 (DJC); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Hyde Park, 1 on 25.vi.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 3.viii.1997 and 27.vii.–24.ix.1998 (TF); Brompton Cemetery, 2.vii.1998 (TF); Hampstead, 2000 (RAS).

This species was discovered as British in the Herne Hill area of South London, beyond the Middlesex boundary, in 1946 (*SLENHS*. 1947–48: 205–208), and for the next ten years was common in the Dulwich area (see Wakeley, *Ent. Rec.* 66: 38–39). It seems odd that it evidently did not spread north into adjacent Middlesex before the 1986 record listed here, although RWJU notes that it was ‘Absent from Chiswick garden at least through 1950s’.

877 *Stahmopodinae* now in *Oecophoridae*, after 658.**BATRACHEDRIDAE****878 *Batrachedra praeangusta* (Haw.)**

Chiswick, on poplar trunks, 1950s, 1960s (RWJU); Harrow Weald Common, on aspen trunk, 25.vii.1964 (PAG); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 3.vii.1976, 28.vii.1978 (DJLA); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and two on 19.vii.2000 (MHo); Hampstead, 2000 (RAS).

AGONOXENIDAE**903 *Chrysoclista linneella* (Cl.)**

Dukes Avenue, Chiswick, on lime trunks, vii.1956 (RWJU); Hyde Park, 1950s (RWJU); Crouch End, an adult in garden at Bryanstone Road, 8.vii.1994 (DH det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and two on 19.vi.2000 (MHo).

904 *Spuleria flavicaput* (Haw.)

Ruislip (Minnion, 1959); Long Wood, 5.v.1989 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

905 *Blastodacna hellerella* (Dup.)

Ruislip (Minnion, 1959); Enfield Highway, Enfield Lock and Whitewebbs Wood, Enfield, 1972 (DJLA); Hampstead, 1984 & 4.vii.1991 (RAS); Lampton Park (AME); Osterley Park, 1987 (JDB); Bentley Priory, 8.x.1988 (AME); Kensal Green Cemetery, ‘in haws’, 1994 (JBL — det. conf. AME); Holland Park, 16.vii.1997 (TF).

906 *Blastodacna atra* (Haw.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

907 *Dystebenna stephensi* (Stt.)

Fulham Palace Gardens (by day), 12.vii.1998 on trunk of holm oak (MHo).

MOMPHIDAE**883 *Mompha raschkiella* (Zell.)**

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Scratch Wood, moth on *Chamaerion angustifolium* 5.vi.1965 (PAG photo); Holland Park, 21.ix.1986 (CWP); Bentley Priory, 8.x.1988 (AME); Stanmore Common, 8.x.1988 (AME); Kenwood, viii.1990 (RAS); Hounslow Heath, 17.vii.1990 (JDB); Kensal Green Cemetery, mines – 1994 (JBL — det. conf. AME); The Paddock, Tottenham Hale, 1997 (CWP); Tower Hamlets Cemetery, 2001 (CWP).

885 *Mompha conturbatella* (Hb.)

Ruislip (Minnion, 1959).

886 *Mompha ochraceella* Curt.

Ruislip (Minnion, 1959); Stanmore, waste ground by railway, 14.vii.1965 (PAG photo); Enfield Lock, 20.vii.1972 (DJLA); Hampstead, 1984 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

888 *Mompha propinquella* (Stt.)

Harrow Weald, in garden, 6.viii.1965 (PAG photo); Buckingham Palace Garden, 7.vii.1982 (Carter, 2001); Hampstead, 2 at actinic light on balcony, 1984 (RAS). A supposed Middlesex

record made by Stan Wakeley, communicated to me by the late Maitland Emmet and allegedly given in *Ent. Rec.* 54: 10, relates to Norwood in Surrey — presumably misinterpreted as 'Northwood'.

- 889 ***Mompha divisella* (H.- S.)**
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964).
- 890 ***Mompha jurassicella* (Frey) = *subdivisella* Bradley**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 891 ***Mompha sturnipennella* (Tr.) (= *nodicolella* Fuchs)**
Buckingham Palace Garden, first recorded 2.viii.1974 (JDB); Enfield (2), 16.vii.1979 (DJLA); Osterley Park, 1987 (JDB); Holloway, dead in light fitting, 1988 (NB, det. CWP); Hounslow Heath, 17.vii.1990 (JDB); Kensal Green Cemetery, gall — 1994 (JBL — det. conf. AME).
- 892 ***Mompha subbistrigella* (Haw.)**
Harrow Weald (light) 17.v.1965 (PAG photo); Enfield Highway, 1972 (DJLA); Holland Park, 1980 (CWP); Hampstead, 1986 (RAS); Hollickwood Avenue, N12, 1990 (KGVS det. CWP); Buckingham Palace Garden, first recorded 2.viii.1974 (JDB) then at m.v. on 1.vi. & 8.vi.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 3–16.vii.1997 (TF); Brompton Cemetery, 19.v.1998 (TF); Hampstead, 2000 (RAS).
- 893 ***Mompha epilobiella* (D. & S.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Stanmore, railway embankment, 4.vi.1965 (PAG photo); Enfield Lock, bred 15–19.vii.1978 (DJLA); Hampstead Heath, reared 20.viii.1984 from larvae collected earlier; adults at light 4.vii.1991 (RAS); Wraysbury — east bank of reservoir, vii.1987 (SC, det. PHS); Hounslow Heath, 17.vii.1990 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo).

COSMOPTERIGIDAE

- 894 ***Cosmopterix zieglerella* (Hb.)**
Hackney (Stainton's *Manual*, 1859, page 395).
- 898 ***Limnaecia phragmitella* (Stt.)**
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 899 ***Pancalia leuwenhoekella* (L.)**
Wraysbury — east bank of reservoir, ix.1987 (SC, det. PHS).
- 909 ***Sorhagenia lophyrella* (Douglas)**
Buckingham Palace Garden, 16.vii.1976 (DJC).

SCYTHRIDIDAE

- [911 ***Scythris grandipennis* (Haw.)**
Included in MBGBI 4 (1) (2002) on the strength of a record purporting to appear in Stainton's *Manual*. However, that work does not seem to mention this species for Middlesex. The species cannot, therefore, be included in the county listing.]
- 918 ***Scythris limbella* (Fabr.)**
Upper Norwood, 18.vii.1939, (SW); Ruislip (Minnion, 1959); Enfield Highway 1972–77, mostly by day (DJLA).

TORTRICIDAE

- 923 ***Phtheochroa sodaliana* (Haw.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 925 ***Phtheochroa rugosana***
Ruislip (Minnion, 1959); Enfield Highway, 8.vi.1980 (DJLA); Osterley Park, 1987 (JDB); Denham Lock Wood, 1996 (CWP).
- 924 ***Hysterophora maculosana* (Haw.)**
Osterley Park, 1987 (JDB).
- 926 ***Phalonidia manniana* (Fischer von Rösl.)**
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB).

- 927 ***Gynnidomorpha minimana* (Caradja)**
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 930 ***Gynnidomorpha alismiana* (Ragonot)**
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 16.v.2000 (MHo).
- 936 ***Cochylimorpha straminea* (Haw.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 937 ***Agapeta hamana* (L.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Buckingham Palace Garden, at m.v. on 27.vi.1996 (DJC); Old Fox Res., Ealing, 20.vii.1975 (JDB); Kensal Green, 1981 (MHy); Potters Fields, Tower Bridge, 1984 (MJH); Hampstead, 1986 (RAS); Hanwell, 1987 (PJE); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Hollickwood Avenue, N12, 23.vii.1989 (KGVS); Highgate Wood, 16.vii.1989 (MJH); Tottenham Hale, 21.vii.1990 (NB); St Anne's Hospital, Tottenham, 13.viii.1990 (NB); Potters Bar, 1990 (JK); Hyde Park, 1 on 25.vi.1996 (TF); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 2000 (RAS); Ruislip Woods, 2000 (AMG); Tower Hamlets Cemetery, 2001 (CWP).
- 938 ***Agapeta zoegana* (L.)**
Ruislip (Minnion, 1959); Ruislip Lido, 21.vii.2000 (AMG).
- 941 ***Aethes hartmanniana* (Cl.)**
Buckingham Palace Garden, 18.vi.1971 (JDB); Wraysbury — east bank of reservoir, vi.1987 (SC, det. PHS).
- 942 ***Aethes piercei* Obraztsov**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 944 ***Aethes williana* (Brahm)**
Ruislip (Minnion, 1959).
- 945 ***Aethes cnicana* (Westwood)**
Ruislip (Minnion, 1959); Natural History Museum Wildlife Garden, South Kensington, in the period 1995–97 (Honey *et al.*, 1998).
- 946 ***Aethes rubigana* (Tr.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 13.vii.1983 (JDB); Osterley Park, 1987 (JDB).
- 947 ***Aethes smeathmanniana* (Fabr.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway, 1971 and 1972 and Enfield Lock, 1975 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 1985 (RAS); Osterley Park, 1987 (JDB); Fulham, 16.viii.1988 (JB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 951 ***Aethes beatricella* (Walsingham)**
Osterley Park, 1987 (JDB); Hampstead, 1998 — probably this species (RAS).
- 952 ***Commophila aeneana* (Hb.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 954 ***Eupoecilia angustana* (Hb.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 14.viii.1981 (JDB).
- 956 ***Cochylidia implicitana* (Wocke)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, between 1965 and 1989 (Carter, 2001); Hampstead, 1984, 1987, 1988 (RAS); Osterley Park, 1987 (JDB); Holloway, dead in light fitting, 1988 (NB, det. CWP); Hampstead, 1998 (RAS).
- [957 ***Cochylidia heydeniana* (H.- S.)**
A field identification at Hampstead, 2.v.1997 is not backed by a voucher specimen and cannot, therefore, be accepted.]
- 958 ***Cochylidia subroseana* (Haw.)**
Hampstead, 2.ix.1984 — 'seems unlikely considering the foodplant' (RAS det. ESB from photo slide).

- 960 *Falseuncaria ruficiliana* (Haw.)
Buckingham Palace Garden, 17.viii.1981 (DJC).
- 962 *Cochylis roseana* (Haw.)
Hampstead, 1986 (RAS); Hollickwood Avenue, N12, 12.viii.1990 and 16.vii.1992 (KGVS); The Paddock, Tottenham Hale, larvae in 1997 (CWP).
- 964 *Cochylis dubitana* (Hb.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill, 1971 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 20.viii.1983 and 2.vii.1984 (RAS); Hounslow Heath, 17.vii.1990 (JDB).
- 965 *Cochylis hybridella* (Hb.)
Hampstead, 1991 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Buckingham Palace Garden, 1.vii.1986 (DJC); Brompton Cemetery, 1 on 17.viii.1997 (TF); Hampstead, 2000 (RAS).
- 966 *Cochylis atricapitana* (Steph.)
Ruislip (Minnion, 1959); Enfield, 18.vii.1972 (DJLA); Osterley Park, 1987 (JDB).
- 968 *Cochylis nana* (Haw.)
Ruislip (Minnion, 1959); Hampstead Heath, 1982, 1984 (RAS); Buckingham Palace Garden, 3.vi.1970 (JDB) and at m.v. on 1.vi.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 969 *Pandemis corylana* (Fabr.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 8.viii.1975 and present during 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Hampstead, 1986 (RAS); Hanwell, 1987 (PJE); Osterley Park, 1987 (JDB); Gutteridge Wood, 26.viii.1993 (MH); Potters Bar, 1990 (JK); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Denham Lock Wood, 1996 (CWP); West Hampstead, 20.viii.1998 (DR); Holland Park, 22.viii.1998 (TF); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Tower Hamlets Cemetery, 2001 (CWP).
- 970 *Pandemis cerasana* (Hb.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Highgate Wood, most years 1985 to 1999 (MJH); Potters Bar, 1990 (JK); Hyde Park, 1 on 19.vi.1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 29.v.1998 (TF); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 971 *Pandemis cinnamomeana* (Tr.)
Ruislip Lido, 2000 (AMG).
- 972 *Pandemis heparana* (D. & S.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 1972–80 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Alexandra Palace, 1989 (NB); Long Wood, 22.vi.1989 (JDB); Tottenham Hale, 1989 & 20.vii.1990 (NB); Hollickwood Avenue, N12, 1990 (KGVS); Potters Bar, 1990 (JK); West Hampstead, 1993 (DR); Park Wood, Ruislip, 15.vi.1996 (MH); Denham Lock Wood, 1996 (CWP); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 18.vi and 28.vii.1998 (TF); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Springwell Reed Bed, Harefield, 11.viii.2001 (AMG).
- 974 *Argyrotaenia ljugiana* (Thunb.) = *pulchellana* (Haw.)
Camley Street Nature Park, Kings Cross, at light in viii.1985 (RAS); Fulham, 19.v.1985 (JB); Hampstead, 1981 to 1989 except 1983 when not seen (RAS); Osterley Park, 1987 (JDB); Buckingham Palace Garden, one on 18.viii.1988 (JDB); Holloway, dead in light fitting, 1988 (NB, det. CWP); Tottenham Hale, 8.vii.1990 (NB); Hollickwood Avenue, N12, May 1990 — 1, 15.vii.1990 — 1, 22.vii.1990 — 2, 24.vii.1990 — 1 and 3.viii.1990 — 1 (KGVS); Gillespie Nature Park, 8.viii.1991 (CWP); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 11.v.1998 (TF); Hampstead, 2000 (RAS); Hornsey, 2001 (MA, gen. det. CWP); Highgate Wood, 2001 (MJH).

977 *Archips podana* (Steph.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Kensal Green, 1981 (MHY); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Potters Bar, 1996 (JK); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Denham Lock Wood, 1996 (CWP); Hampstead, 1998 (RAS); Brompton Cemetery, 29.v.1998 (TF); Highgate Wood, 1988, 1999 (MJH); Ruislip Lido, 17.vi.2000 & 30.vi.2000 (AMG); Neasden, 2000 (AS); Ruislip Woods, 2000 (AMG); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

[978 *Archips betulana* (Hb.)

Recorded in error. Listed for Ruislip (Minnion, 1959) as '*Cacoecia decretana* Treits.' this species has only ever been recorded in Norfolk within Britain and the last record was around the year 1900.]

979 *Archips crataegana* (Hb.)

Buckingham Palace Garden, 1961–63 survey (*Proc. Trans. SLENHS* 1963) and 27.vi.1996 (DJC); Hyde Park, several on 25.vi.1996 (TF); Brompton Cemetery, 18.vi.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 19.vi.2000 (MHo).

980 *Archips xylosteana* (L.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Hampstead, 1980 (RAS); Osterley Park, 1987 (JDB); Hyde Park, 1 on 25.vi.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Brompton Cemetery, 24.vi.1998 (TF); Tower Hamlets Cemetery, 2001 (CWP).

981 *Archips rosana* (L.)

Osterley Park, 1987 (JDB); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and at m.v. on 13.vii.1996 (DJC); Enfield Lock, 20.vii.1972 (DJLA).

981a *Archips semiferanus* (Walker)

Imported pupa at Covent Garden Flower Market during 1984 (Lowe, *Ent. Rec.* 36: 134).

982 *Choristoneura diversana* (Hb.)

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

983 *Choristoneura hebenstreitella* Müll.

Ruislip (Minnion, 1959); Natural History Museum Wildlife Garden, South Kensington, 19.vi.2000 (MHo).

985 *Cacoecimorpha pronubana* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Hollickwood Avenue, N12, regular, larvae on honeysuckle and a wide variety of other plants including ivy and mullein (KGVS); Holland Park, 1980 (CWP); Dove Mews, SW5, common around the early 1980s (SAKJ); Toppings Wharf, 1982 (MJH); Osterley Park, 1987 (JDB); Hampstead, reared from fruits of blackcurrant, 1989 (RAS); Ealing, 1990 (PAB); Tottenham Hale, 4.viii.1990 (NB); Cowley, five larvae collected from *Viburnum laurustinus* growing on a balcony 4 metres above ground, 26.iii.1993 produced a male on 10.v.1993 and two females on each of 14 and 17.v.1993 (MH); Regent's Road, W4, an adult beaten from 'ornamental broom' on 19.i.1994 (DH); Sunbury, 1994 (DP); Cold Harbour Lane, Isle of Dogs, pupa on 30.iv.1994 (Gareth King); Denham Lock Wood, 1996 (CWP); Hounslow Heath LNR, 23.v.1997 (J. Herbert); The Paddock, Tottenham Hale, 1997 (CWP); City Mill River, Leyton, 22.iii.2000 (DH); Highgate Wood, 2001 (MJH).

986 *Syndemis musculana* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, recorded between 1965 and 1989, but no details available (JDB); Hampstead, 1984 (RAS); Uxbridge Common, 1989 (AMG); Highgate Wood, 5.viii.1989 (MJH); Alexandra Palace, 1989 (NB); Finsbury Park, 1989 (NB); Tottenham Hale, 1989 (NB); Highgate Wood, 16.vii.1989 (MJH); Hounslow Heath LNR, 24.v.1997 (JH); Park Wood, Ruislip, 25.v.1997 (MH); Ruislip Lido, 30.vi.2000 (AMG); Hampstead, 2000 (RAS); Ruislip Woods, 2000 (AMG).

987 *Ptycholomoides aeriferanus* (H.- S.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 16.vii.1979 (DJLA); Hampstead, 1984 (RAS); Fulham, 1986 (JB).

989 *Aphelia paleana* (Hb.)

Ken Wood, 1982 (RAS); Hampstead, occasional (RAS); Alexandra Palace, 1989 (NB); Ruislip Woods, 2000 (AMG); Natural History Museum Wildlife Garden, South Kensington, 12.vi.2000 (MHo).

993 *Clepsis spectrana* (Tr.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1971 and 1975 (DJLA); Highgate Wood, 1986 (MJH); Fulham, 1986 (JB); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Tottenham Hale, 6.viii.1990 (NB).

994 *Clepsis consimilana* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1971 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Dove Mews, SW5, one on 17.ix.1979 (SAKJ); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Finsbury Park, 1989 (NB); Tottenham Hale, 1.vi.1990 (NB); Chiswick Triangle N. R., 1993 (incog.); West Hampstead, 1993 (DR); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Highgate Wood, 1985 (MJH); Hampstead, 2000 (RAS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

998 *Epiphyas postvittana* (Walk.)

Fulham, 26.vi.1983 (JB det. CWP); Buckingham Palace Garden, first recorded 18.v.1989, becoming very common from 1998 (DJC); Hampstead, at actinic light on 31.viii.1995 (RAS); Buckingham Palace Garden, at m.v. on 6.vi.1996 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and on several dates from 9.v. to 31.viii during 2000 (MHo); Holland Park, 26.iv.–11.v.1998 & 23.ix.1998 (TF); Brompton Cemetery, 22.iv.–28.vii.1998 (TF); City Mills River, larva on plantain, 8.iii.2000, emerged 30.iii.2000 (DH); Lower Lea, 11.x.2000., larva on ivy flowers, adult bred (DH); Highgate Wood, 2001 (MJH).

Records from regular trapping at Hampstead indicate the spread of this species: first record in 1995, 1 (perhaps 2) in 1996, 7 in 1997, 5 in 1998, 35 in 1999 and 75 in 2000 (RAS).

999 *Adoxophyes orana* (Fischer von Rösl.)

Buckingham Palace Garden, recorded between 1965 and 1989 but precise data unavailable (Carter, 2001); Osterley Road, 21.viii.1983 (JDB); Osterley Park, 1987 (JDB); Potters Bar, 1990, 1993 (JK).

1000 *Ptycholoma lecheana* (L.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, larva in web on ‘buckeye’ on Heath, adult emerged 10.vi.1981; adults on 6.vi.1982; larvae in 1987 emerged between 3 & viii.vi.1987 (RAS); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Park Wood, Ruislip, 15.vi.1996 (MH); Hyde Park, 1 on 25.vi.1996 (TF).

1001 *Lozotaeniodes formosanus* (Geyer)

Buckingham Palace Garden, 27.vii.1981 (JDB); Feltham, four taken in 1959 (Classey, *Ent. Gaz.* 11: 160); Hampstead, 1980 (RAS); Hampstead Garden Suburb, 1985 (PRH); Fulham, 1986 (JB); Northwood, 1986 (AMG); Osterley Park, 1987 (JDB); Hyde Park, 1 on 17.vii.1996 (TF); West Hampstead, 7.viii.1997 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 1 on 30.vii.1997 and 24.vi.–28.vii.1998 (TF); Holland Park, 6.vii.1998 (TF); Hampstead, 2000 (RAS); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).

1002 *Lozotaenia forsterana* (Fabr.)

Ruislip (Minnion, 1959).

1006 *Epagoge grotiana* (Fabr.)

Whitewebbs Wood, Enfield, 22.vii.1972 (DJLA); Hampstead, 1984 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Highgate Wood, 1994 (MJH); Potters Bar, 1990 (JK).

1007 *Capua vulgana* (Frölich)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Fulham, 1986 (JB); Holland Park, 19.v.1998 (TF).

1010 *Ditula angustiorana* (Haw.)

Ruislip (Minnion, 1959); Winchmore Hill and Enfield Highway, 1971 (DJLA); Buckingham Palace Garden, first recorded 1.vii.1968 (JDB) then during 1995–1997, when noted as being common in July (DJC); Fulham, 1986 (JB); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Highgate Wood, 1992, 1994 (MJH); Buckingham Palace Garden, at m.v. on 13.vii. & 28.vii.1995 and 6.vi. & 27.vi.1996 (DJC); Hyde Park, mant from end-June to mid-July 1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Denham Lock Wood, 1996 (CWP); Holland Park, vi.–vii. & ix.1998 (TF); Brompton Cemetery, 7.vii.1998 (TF); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

- 1011 *Pseudargyrotoza conwagana* (Fabr.)
Ruislip (Minnion, 1959); Winchmore Hill, 1971 (DJLA); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Denham Lock Wood, 1996 (CWP); Brompton Cemetery, 1 on 14.vii.1998 (TF); Holland Park, 19.v.–16.vi.1998 (TF).
- 1014 See after 1062
- 1015 *Eulia ministrana* (L.)
Ruislip (Minnion, 1959); Mad Bess Wood, Ruislip, 1989 (CWP); Ruislip Lido, 2.vi.2000 (AMG).
- 1016 *Cnephasia longana* (Haw.)
Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.
- 1018 *Cnephasia communana* (H.- S.)
Ruislip (Minnion, 1959).
- 1020 *Cnephasia stephensiana stephensiana* Doubl.
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway and Enfield Lock, 1971 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 1984 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Ken Wood, 19.v.1994 (DH det. CWP); Brompton Cemetery, 24.vi.–7.vii.1998 (TF).
- 1021 *Cnephasia asseclana* (D.& S.) = *interjectana* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Whitewebbs Wood, Enfield Lock and Winchmore Hill, 1972 (DJLA); Hampstead, 1984 & 1985 (RAS det. ESB); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 including several melanics (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 3.viii.1997 (TF); Hampstead, a male (gen. det. CWP) on 2.vii.1999 (RAS).
- 1022 *Cnephasia pasiuana* (Hb.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964).
- 1024 *Cnephasia incertana* (Tr.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, 1982 (RAS det. ESB); Enfield Highway, 18.vii.1972 (DJLA); Osterley Park, 1987 (JDB); Tottenham Hale, 27.vi.1996, 1♀ gen. det. (CWP); Holland Park, 3.viii.1997 (TF); Holland Park, 16.vi.1998 (TF).
- 1025 *Tortricodes alternella* (D.& S.)
Ruislip (Minnion, 1959); Bishops Wood, Harefield, 1979 (AMG); Hampstead, most years (RAS); Copse Wood, 1980 (AMG); Park Wood, Ruislip, 1986 (AMG); Bishops Wood, Harefield, 1986 (AMG); Holland Park, 18.ii.1998 (TF); Brompton Cemetery, 17.iii.1998 (TF); Hampstead, 1998 (RAS).
- 1029 *Eana osseana* (Scop.)
Buckingham Palace Garden, 17.vii.1967 (JDB).
- 1027 *Neosphaleroptera nubilana* (Hb.)
Enfield bred 2.vii.1977 (DJLA).
- 1030 *Eana incanana* (Steph.)
Buckingham Palace Garden, 24.vii.1972 (JDB); Osterley Park, 1987 (JDB); Holland Park, 6.vii.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 19.vii.2000 (MHo).
- 1032 *Aleimma loeflingiana* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Whitewebbs Wood, Enfield, 11.7.72 (DJLA); Hampstead, 1984 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Hyde Park, 1 on 17.vii.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 18.vi.1998 (TF); Hampstead, 2000 (RAS); Ruislip Lido, 30.vi.2000 (AMG); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 1033 *Tortrix viridana* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield bred 13.vi.1978 (DJLA); Hampstead Garden Suburb, 1985 (PRH); Hampstead, most years (RAS); Bayhurst Country Park, 1986 (AMG); Copse Wood,

- Ruislip, 1986 (AMG); Hanwell, 1987 (PJE); Osterley Park, 1987 (JDB); West Drayton, 8.vii.1987 and 22.vi.1988 (MH); Bayhurst Wood, 19.vii.1988 (MH); Long Wood, 22.vi.1989 (JDB); Darlands Lake, at m.v. light 23.vi.1990 (AMG/MHg); Tottenham Hale, 28.vi.1990 (NB); Potters Bar, 1990, 1996 (JK); Hyde Park, 1993 (TF); Holland Park, 22–29.vi.1993 and 15.vi.1994 (TF); Hyde Park, many from end-June to mid-July 1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Park Wood, Ruislip, 15.vi.1996 (MH); Holland Park, 3–16.vi.1998 (TF); Brompton Cemetery, 18–24.vi.1998 (TF); Highgate Wood, most years 1985 to 1999 (MJH); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Hampstead, 2000 (RAS); Neasden, 2000 (AS); Ruislip Lido, 30.vi.2000 (AMG); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 1035 *Acleris bergmanniana* (L.)**
Ruislip (Minnion, 1959); Old Fox Res., Ealing, 20.vii.1975 (JDB); Osterley Park, 1987 (JDB).
- 1036 *Acleris forsskaleana* (L.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill and Enfield Highway, 1972 (DJLA); Fulham, 1986 (JB); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Buckingham Palace Garden, at m.v. on 6.vii. & 13.vii.1995 and many on 27.vi.1996 (DJC); Hyde Park, a few, July 1996 (TF); Denham Lock Wood, 1996 (CWP); West Hampstead, 7.viii.1997 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 18.vi. and 28.vii.1998 (TF); Highgate Wood, 1992 (MJH); Hampstead, 2000 (RAS).
- 1037 *Acleris holmiana* (L.)**
Ruislip (Minnion, 1959).
- 1038 *Acleris laterana* (Fabr.)**
Winchmore Hill and Enfield Highway, 1971 (DJLA); Buckingham Palace Garden, 5.x.1979 (JDB); Highgate Wood, 1999 (MJH); Ruislip Woods, 2000 (AMG).
- 1039 *Acleris comariana* Lien. & (Zell.)**
Hampstead, 6.viii.1983 (RAS det. ESB from photo slide).
- 1041 *Acleris sparsana* (D.& S.)**
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Winchmore Hill, 1971 (DJLA); Enfield 22.ix.1978 (DJLA); Hampstead, 1985 (RAS); Northwood, 1986 (AMG); Pinner, 1986 (WEM); Osterley Park, 1987 (JDB); Holland Park, 24.ix.1998 (TF); Ruislip Woods, 2000 (AMG).
- 1042 *Acleris rhombana* (D.& S.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 15.x.1969 (JDB); Winchmore Hill, 30.ix.1971 (DJLA); Osterley Park, 1987 (JDB).
- 1043 *Acleris aspersana* (Hb.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 28.vii.1998 (TF); Hampstead, viii.2001 (RAS).
- 1044 *Acleris ferrugana* (D.& S.)**
Ruislip (Minnion, 1959). Minnion lists both *ferrugana* Schiff. and *fissurana* Pierce, but these two names are synonymous. It is likely that his *ferrugana* Schiff. is a mistake for *ferrugana* sensu Barrett, which is an old name for 1045: *notana* Donovan. and that his *fissurana* Pierce is what we understand here as *ferrugana* of Denis & Schiffermüller; Osterley Park, 1987 (JDB); Hyde Park, 1 on 10.vii.1996 (TF); Pinner, 12.x.1998 (MZ); Holland Park, 21.iv & 2.ix.1998 (TF); Fulham Palace Gardens (by day) 12.vii.1998 (MHo); Highgate Wood, 2001 (MJH).
- 1045 *Acleris notana* Don.**
Listed for Ruislip by Minnion (1959) as '*ferrugana* Schiff' see comments under species 1044, above); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Bishops Wood, Harefield, 1979 (AMG); Hampstead, 1982 (RAS).
- 1047 *Acleris schalleriana* (L.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1048 *Acleris variegana* (D.& S.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Winchmore Hill, 1971 (DJLA); Enfield 1977 (DJLA); Hampstead, most years (RAS); Holland Park, 1980 (CWP); Potters Bar, 1980 (CWP); Northwood, 1986 (AMG); Pinner, 1986 (WEM); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Hollickwood

Avenue, N12, 17.vii.1990 (KGVS); West Hampstead, 1993 (DR); Potters Bar, 1996 (JK); Denham Lock Wood, 1996 (CWP); Holland Park, 22.viii.1997 (TF); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, 2000 (RAS).

1050 *Acleris kochiella* (Goeze) = *boscana* (Fabr.)

Hampstead, 1983 and one reared ex. *Ulmus* emerging 11.vi.1997 (RAS); Holland Park, 19.v.1998 (TF); Ruislip Woods, 2000 (AMG).

1053 *Acleris hastiana* (L.)

Hampstead, fairly regular in low numbers (RAS).

1054 *Acleris cristana* (D.& S.)

Buckingham Palace Garden, first recorded 20.vii.1989 (JDB) and subsequently 3.viii.1995, 18.ix.1997 and 5.viii.1999 (DJC); Enfield 17.x.1975 12.vii.1977 (DJLA); Bishops Wood, Harefield, 1979 (AMG); Tottenham Hale, 31.vii.1990 (NB); Hampstead, in the Parliament Court trap and on the Heath, 28.vii.1990 (RAS); Buckingham Palace Garden, at m.v. on 3.viii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 21.iv.1998 (TF).

1061 *Acleris literana* (L.)

Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.

1062 *Acleris emargana* (Fabr.)

Ruislip (Minnion, 1959); Ruislip, 1.ix.2000 (AMG).

1014 *Isotrias rectfasciana* (Haw.)

Ruislip (Minnion, 1959); Hampstead, one at actinic light 2.vi.1997 (RAS).

1063 *Celypha striana* (D.& S.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1971, 1975 (DJLA); Hampstead, 1984 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Tottenham Hale, 5.vi.1990 (NB); Paddington, 1989 (NB); Hollickwood Avenue, N12, regular (KGVS); Highgate Wood, 1993 (MJH); Denham Lock Wood, 1996 (CWP); Hampstead, 2000 (RAS).

1064 *Celypha rosaceana* Schläg.

Ruislip (Minnion, 1959); Enfield Highway, 17.vii.1971 (DJLA).

1068 *Celypha rivulana* (Steph.)

Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.

1076 *Celypha lacunana* (D.& S.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, regular in 1970s (DJLA); Hampstead, regular (RAS); Pinner, regular (WEM); Fulham, 1985 (Burge); Northwood, 1986 (AMG); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Highgate Wood, 16.vii.1989, 1993, 1994 (MJH); Ealing, 1990 (PAB); Hollickwood Avenue, N12, 22.vi.1994 (KGVS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Park Wood, Ruislip, 25.v.1997 (MH); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Holland Park, 22.viii.1997, v, vi, vii & ix.1998 (TF); Hampstead, 2000 (RAS); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1079 *Piniphila bifasciana* (Haw.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill, 8.viii.1971 (DJLA); Enfield 23.vii.1980 (DJLA); Osterley Park, 1987 (JDB).

1082 *Hedya pruniana* (Hb.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 11.vi.1973 (JDB); Enfield 28.viii.1976 (DJLA); Long Wood, 22.vi.1989 (JDB); Tower Hamlets Cemetery, 2001 (CWP).

1083 *Hedya nubiferana* (Haw.) = *dimidioalba* (Retzius)

Ruislip (Minnion, 1959); Buckingham Palace Garden, (Bradley & Mere, 1966); Enfield area, 1971 (DJLA); Hampstead Garden Suburb, 1985 (PRH); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Potters Bar, 1990, 1996 (JK); Highgate Wood, 1999 (MJH); Hampstead, 2000 (RAS); Ruislip Lido, 17.vi.2000 (AMG).

1084 *Hedya ochroleucana* Fröl.

Ruislip (Minnion, 1959); Buckingham Palace Garden, (Bradley & Mere, 1966); Long Wood, 22.vi.1989 (JDB).

- 1086 *Hedya salicella* (L.)**
Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Hampstead, one at actinic light on balcony, 31.viii.1997 (RAS); Neasden, 1–17.vii.2000 (AS); Ruislip Lido, 30.vi.2000 (AMG); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).
- 1088 *Pseudosciaphila branderiana* (L.)**
Ruislip Lido, 2 on 17.vi.2000 & 1 on 30.vi.2000 (AMG).
- 1089 *Apotomis semifasciana* (Haw.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1091 *Apotomis lineana* (D.& S.)**
Ruislip (Minnion, 1959) — listed as '*corticana* Schiff.', but there is no such species. It is assumed, from the sequence of the record and from the fact that the list contains other similar typing errors, that *corticana* Hübner was intended = *lineana* (D.& S.).
- 1092 *Apotomis turbidana* (Hb.)**
Whitewebbs Wood, Enfield, 1971 (DJLA); Highgate Wood, 1998 (MJH); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).
- 1093 *Apotomis betuletana* (Haw.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Whitewebbs Wood, Enfield, 1971 (DJLA); Hampstead, regular (RAS); Chiswick Triangle N. R., 1993 (incog.); Highgate Wood, occasional (MJH); Denham Lock Wood, 1996 (CWP); Ruislip Lido, 1.ix.2000 (AMG).
- 1094 *Apotomis capreana* (Hb.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1095 *Apotomis sororculana* (Zett.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1097 *Endothenia gentianaeana* (Hb.)**
Enfield Lock, 1972 (DJLA); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Tower Hamlets Cemetery, 2001 (CWP).
- 1098 *Endothenia oblongana* (Haw.)**
Ruislip (Minnion, 1959).
- 1099 *Endothenia marginana* (Haw.)**
Hounslow Heath, 17.vii.1990 (JDB); Tower Hamlets Cemetery, 2001 (CWP).
- 1102 *Endothenia nigricostana* (Haw.)**
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1104 *Endothenia quadrimaculana* (Haw.)**
Ruislip (Minnion, 1959).
- 1107 *Lobesia botrana* (D.& S.)**
Enfield, 16.vii. & 25.vii (2) 1976 — new to Britain (Agassiz, *Ent. Gaz.* 28: 21–22); Hampstead, 1985 (RAS det. ESB).
- 1108 *Lobesia abscisana* (Doubl.)**
Buckingham Palace Garden, 14.vii.1967 (JDB); Winchmore Hill, Enfield Lock and Enfield Highway, 1972 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Fir & Pond Wood 9.v.1975 (DJLA); Enfield 23.vii.1979, 28.vii.1980 (DJLA); Hampstead, 1984 (RAS det. ESB); Hounslow Heath, 17.vii.1990 (JDB); Hampstead, 9.vii.1990 (RAS); Hollickwood Avenue, N12, 19.vii.1990 (KGVs); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1109 *Lobesia littoralis* (Humph. & Westw.)**
Ruislip (Minnion, 1959); Enfield Highway, 1971 and Winchmore Hill, 1972 (DJLA); Buckingham Palace Garden, 17.vii.1989 (JDB); Hampstead, 8.ix.1982 (RAS).
- 1111 *Bactra lancealana* (Hb.)**
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, 1986 (RAS); Osterley Park, 1987 (JDB); Highgate Wood, 1996 (MJH).

1113 *Eudemis profundana* (D.& S.)

Ruislip (Minnion, 1959); Winchmore Hill, 1971 (DJLA); Buckingham Palace Garden, 13.vii.1979 (JDB) and during 1995–97 survey (DJC); Hampstead, regular (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Fulham, 2.viii.1988 (JB); Queen's Wood, at m.v. light on 29.vii.1994 (DH det. CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 27.vii.1998 (TF); Brompton Cemetery, 28.vii.1998 (TF); Hampstead, 2000 (RAS).

1114 *Eudemis porphyрана* (Hb.)

Winchmore Hill, 4.viii.1971 (DJLA).

1115 *Ancylis achatana* (D.& S.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1.vii.1966 (JDB); Whitewebbs Wood, Enfield, 1971 (DJLA); Enfield 19.vi.1976 (DJLA); Hampstead, 9.vii.1984 (RAS det. ESB from photo slide); Osterley Park, 1987 (JDB); Fulham, 30.vi.1987 (JB).

1120 *Ancylis mitterbacheriana* (D.& S.)

Ruislip (Minnion, 1959).

1123 *Ancylis laetana* (Fabr.)

Ruislip (Minnion, 1959).

1126 *Ancylis badiana* (D.& S.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield 25.viii.1971, 8.v.1975 (DJLA); Hampstead, 1984 (RAS); Pinner, 1986 (WEM); Northwood, 1986 (AMG); Tottenham Hale, 10.v.1990 (NB).

1132 *Epinotia subocellana* Don.

Buckingham Palace Garden, 25.vii.1983 (JDB); Long Wood, 22.vi.1989 (JDB).

1133 *Epinotia bilunana* (Haw.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Whitewebbs Wood, Enfield, 1972 (DJLA); Enfield 20.vi.1979 (DJLA); Fulham, 1986 (JB); Hampstead, 1986, 1988 (RAS); Buckingham Palace Garden, at m.v. on 15.vi.1995 and 27.vi.1996 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 16.vi.1998 (TF); Hampstead, 2000 (RAS).

1134 *Epinotia ramella* (L.)

Ruislip (Minnion, 1959); Hampstead, 1982 (RAS); Denham Lock Wood, 1996 (CWP); Park Wood, Ruislip, 25.v.1997 (MH); Highgate Wood, 1999 — a single f. *costana* Duponchel (MJH det. CWP).

1135 *Epinotia demarniana* F.v.R.

Buckingham Palace Garden, 12.vi.1970 (JDB); Park Wood, Ruislip, 15.vi.1996 — 2 adults at m.v.l. (MH); Hampstead, 1998 (RAS).

1136 *Epinotia immundana* F.v.R.

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, 2.v.1989 (RAS); Buckingham Palace Garden, at m.v. on 1.vi.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, 9.v., 12.v. and 4.ix.2000 (MHo).

1137 *Epinotia tetraquetra* (Haw.)

Ruislip (Minnion, 1959).

1138 *Epinotia nisella* (Cl.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill, 1971 (DJLA); Hampstead, 1986 (RAS); Pinner, 1986 (WEM); Camley Street Nature Park, 1986 (RAS); Northwood, 1986 (AMG); Osterley Park, 1987 (JDB); Hounslow Heath, 17.vii.1990 (JDB); West Hampstead, 1993 (DR); Buckingham Palace Garden, at m.v. on 28.vii.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 19.vii.2000 (MHo); Hampstead, 2000 (RAS); Hornsey, 2001 (MA, gen. det. CWP).

1139 *Epinotia tenerana* (D.& S.)

Ruislip (Minnion, 1959); Osterley Park, 1987 (JDB); Brompton Cemetery, 28.vii.1998 (TF); Buckingham Palace Garden, 16.vii.1997 (DJC); Natural History Museum Wildlife Garden, South Kensington, 14.vi.2000 (MHo).

1142 *Epinotia tedella* (Cl.)

Buckingham Palace Garden, 20.vi.1984 (JDB).

1145 *Epinotia nanana* (Tr.)

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

- 1147 *Epinotia cruciana* (L.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1150 *Epinotia abbreviana* (Fabr.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Hampstead, 1984, 1987, 1988, 1999 (RAS); Osterley Park, 1987 (JDB); Holland Park, 3.vi.1998 (TF).
- 1151 *Epinotia trigonella* (L.) = *stroemiana* (Fabr.)
Ruislip (Minnion, 1959).
- 1152 *Epinotia maculana* (Fabr.)
Ruislip (Minnion, 1959).
- 1155 *Epinotia brunnichana* (L.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, larva in rolled birch leaf, adult reared 15.vii.1980. Adults occasionally at light (RAS); Fulham, 1986 (JB); Copsewood, Ruislip, 5.vii.1998 (MZ); Ruislip Lido, 14.vii.2000 (AMG).
- 1156 *Epinotia solandriana* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Whitewebbs Wood, Enfield, 22.vii.1972 (DJLA); Hampstead, 1983 (RAS); Highgate Wood, 1987 (MJH).
- 1159 *Rhopobota naevana* (Hb.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97, when very common (Carter, 2001); Enfield, bred 12.vi.1976 (DJLA); Hampstead, 1984 & 1990 (RAS); Osterley Park, 1987 (JDB).
- 1163 *Zeiraphera ratzeburgiana* Ratz.
Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 27.vi.1993 (RAS).
- 1165 *Zeiraphera isertana* (Fabr.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63, erroneously listed as *incertana*, (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield bred 22.vi.1976, 2.vii.1977 (DJLA); Hampstead, 1985, 1987 (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); West Hampstead, 1993 (DR); Buckingham Palace Garden, at m.v. on 13.vii.1995 (DJC); Hyde Park, 1 on 10.vii.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, four on 6.vii.1998 (TF); Fulham Palace gardens (by day) 12.vii.1998 (MHo); Hampstead, 2000 (RAS); Scratchwood, 5.vii.2001 (CWP).
- 1166 *Zeiraphera griseana* (Hb.) = *diniana* Guen.
Buckingham Palace Garden (Bradley & Mere, 1964); Enfield Highway, 2.vii.1972 and Winchmore Hill 26.viii.1971 (DJLA).
- 1167 *Gypsonoma aceriana* Dup.
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 8.viii.1971 (DJLA); Hampstead, 1986, 1987, 1988 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 2000 (RAS).
- 1168 *Gypsonoma sociana* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Hampstead, most years (RAS).
- 1169 *Gypsonoma dealbana* Fröl.
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield bred 24.vi.1975 (DJLA); Hampstead, most years (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 19.vi.2000 (MHo); Holland Park, 22.viii.1997 and 16.vi.1998 (TF); Brompton Cemetery, 24.vi.1998 (TF); Highgate Wood, 1999 (MJH); Tower Hamlets Cemetery, 2001 (CWP).
- 1170 *Gypsonoma oppressana* (Tr.)
Buckingham Palace Garden, noted between 1965 and 1989, precise data not available (JDB); Enfield 22.vii.1972 (DJLA); Hampstead, one at actinic light on 26.vi.1997 and a male (gen. det. CWP) on 16.vi.1999 (RAS); Natural History Museum Wildlife Garden, South Kensington, several from 12–19.vi.2000 (MHo).

- 1171 *Gypsonoma minutana* (Hb.)
Buckingham Palace Garden, 18.vii.1969 (JDB); Hampstead, 1982, 1983, 1984 and 1989 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2 on 19.vii.2000 (MHo)
- 1174 *Epiblema cynosbatella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield area, 1971 (DJLA); Fulham, regular 1980s (JB); Hampstead, regular, 1980s, (RAS); Northwood, 1986 (AMG); Tottenham Hale, 26.iv.1990 (NB); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 19.v.1998 (TF); West Hampstead, 22.v.1998 (DR); Hampstead, 2000 (RAS).
- 1175 *Epiblema uddmanniana* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 25.vi.1974 (Bradley & Mere, 1966) and also noted 1995–97 (Carter, 201); Enfield area, 1971 (DJLA); Kensal Green, 1981 (MHy); Arlington Square, W1, undated early 1980s (MG); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Hampstead: regular, but only 3 in 1990 — on 18.v., 18.vii. and 27.viii. and a late one on 19.ix.1992 (RAS); Potters Bar, 1990 (JK); Hollickwood Avenue, N12, 4.vii.1993 (KGVS); Park Wood, Ruislip, 15.vi.1996 (MH); Brompton Cemetery, 18.vi. and 17.viii.1998 (TF); Denham Lock Wood, 1996 (CWP); Highgate Wood, most years 1997 (MJH); The Paddock, Tottenham Hale, 1997 (CWP); Hampstead, 2000 (RAS); Neasden, 27.vi.2000 (AS); Ruislip Lido, 30.vi.2000 (AMG); Hampstead, 1998 (RAS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 1176 *Epiblema trimaculana* (Haw.)
Ruislip (Minnion, 1959); Enfield Highway, 1972 (DJLA); Osterley Park, 1987 (JDB); Park Wood, Ruislip, 15.vi.1996 and 25.v.1997 (MH).
- 1177 *Epiblema rosaecolana* Doubl.
Ruislip (Minnion, 1959); Buckingham Palace Garden, 3.vii.1973 (JDB); Enfield Highway, 1972 and Whitewebbs Wood, 1975 (DJLA); Hampstead, 1983 (RAS); Hampstead, 2000 (RAS); Scratchwood, 5.vii.2001 (CWP).
- 1178 *Epiblema roborana* (D.& S.)
Ruislip (Minnion, 1959); Winchmore Hill, 19.viii.1971 (DJLA); Hampstead — on allotments, 1987 (RAS).
- 1180 *Epiblema tetragonana* (Steph.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1183 *Epiblema foenella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Lock, 1972 and Enfield Highway, 8.vi.1977, 22.vii.1979 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Kensal Green, 1981 (MHy); Hampstead, regular (RAS); Fulham, 1986 (JB); Tottenham Hale, 16.vii.1990 (NB); Alexandra Park, 20.vii.1990 (NB); Hampstead, 2000 (RAS); Neasden, 29.vii.2000 (AS).
- 1184 *Epiblema scutulana* (D.& S.)
Ruislip (Minnion, 1959); Hampstead, regular (RAS).
- 1184a *Epiblema cirsiana* (Zell.)
Enfield bred 2–20.v.1974 (DJLA).
- 1186 *Epiblema sticticana* (Fabr.) = *farfarae* (Fletcher)
Ruislip (Minnion, 1959); Hampstead Heath, 5.7.1987 (RAS).
- 1187 *Epiblema costipunctana* (Haw.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1192 *Eucosma conterminana* (H.- S.)
Hampstead, first recorded 27.vii.1996 in ground level actinic trap then one on 4.vii.1997 at actinic light on balcony, then in 1998 some 18 examples between 6–13.vii and on 12.viii. (RAS); Brompton Cemetery, 9–20.vii.1998 (TF).
- 1197 *Eucosma campoliliana* (D.& S.)
Enfield Lock, 1972 (DJLA); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 12.vii.1990 (KGVS); Hampstead, 1991 (RAS); Ruislip Lido, 30.vi.2000 (AMG).

- 1199 *Eucosma pupillana* (Cl.)
Enfield 25.vii.1978 (DJLA); Fulham, 1986 (JB det. CWP); Hampstead, indoors on 3.viii.1995 near window adjacent to moth trap (RAS).
- 1200 *Eucosma hohenwartiana* (D.& S.)
Enfield Lock, 1972 (DJLA); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); The Paddock, Tottenham Hale, 1997 (CWP); Holland Park, 16.vi.1998 (TF); Brompton Cemetery, 7.vii.1998 (TF); Natural History Museum Wildlife Garden, South Kensington, 12.vi.2000 (MHo). The form *fulvana* (Steph.) is represented by only one record — Enfield Lock, 9.vii.1975 (DJLA).
- 1201 *Eucosma cana* (Haw.)
Ruislip (Minnion, 1959); Enfield area, 1972 (DJLA); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Denham Lock Wood, 1996 (CWP); The Paddock, Tottenham Hale, 1997 (CWP); Hampstead, 1998 (RAS).
- 1202 *Eucosma obumbratana* Lien. & (Zell.)
Ruislip (Minnion, 1959); Enfield 22.vii.1972 (DJLA); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964).
- 1204 *Thiodia citrana* (Hb.)
Enfield Highway, 10.vii.1972 and 17.vii.1975 (DJLA).
- 1205 *Spilonota ocellana* (D.& S.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield area, 1970s (DJLA); Hampstead, 1985 (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12, 26.vii.1990 (KGVS); Hyde Park, 1 on 17.vii.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Scratchwood, 5.vii.2001 (CWP).
- 1205a *Spilonota laricana* (Hein.)
Buckingham Palace Garden, first recorded 27.vii.1965 (Bradley & Mere, 1966); Osterley Park, 1987 (JDB).
- 1207 *Clavigesta purdeyi* (Durrant)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 1971–78 (DJLA); Hampstead, 15.viii.1981, 18.viii.1987 and 22.viii.1988 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1210 *Rhyacionia buoliana* (D.& S.)
Ruislip (Minnion, 1959); Hampstead, 30.vi.1986 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1211 *Rhyacionia pinicolana* Doubl.
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Northwood, 1978 (AMG); Pinner, 1986 (WEM); Natural History Museum Wildlife Garden, South Kensington, 1.viii.2000 (MHo).
- 1212 *Rhyacionia pinivorana* Lien. & (Zell.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway, 9.viii.1972 (DJLA); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1216 *Enarmonia formosana* (Steph.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Arlington Square, 1980 (MG).
- 1217 *Eucosmomorpha albersana* (Hb.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1219 *Lathronympha strigana* (Fabr.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, first recorded 19.vii.1964 (Bradley & Mere, 1966); Winchmore Hill, 1971 and Enfield Lock, 1972 (DJLA); Coppets Wood, larvae in terminal shoots of *Hypericum maculatum*, adults emerged 10.viii.1984 (KGVS); Osterley Park, 1987 (JDB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1221 *Strophedra weirana* Dougl.
Whitewebbs Wood, 4.vii.1972 and Enfield, 8.vii.1972 (DJLA); Stanmore Common, a cocoon, 8.x.1988 (AME); Hampstead, no data (RAS det. CWP).

1223 *Pammene splendidulana* Guen.

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

1225 *Pammene obscurana* (Stephens, 1834)

Natural History Museum Wildlife Garden, South Kensington, 9.v.2000 (MHo).

1227 *Pammene giganteana* (Peyerimhoff)

Ruislip (Minnion, 1959).

1228 *Pammene argyrana* (Hb.)

Ruislip (Minnion, 1959).

Fulham Palace gardens (by day) 24.iv.1999 (MHo).

1232 *Pammene populana* (Fabr.)

Osterley Park, 1987 (JDB).

1233 *Pammene aurita* Razowski (= *aurantiana* (Stdgr.) preocc.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, (Bradley & Mere, 1966); Enfield Highway, 1971 and 1975 (DJLA); Hampstead, most years: 9 between 29.vii. and 3.ix. 1984, 3 between 18 and 24.vii.1989, 10 between 13.vii. and 1.viii.1990 then 1 on 15.x.1990 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 1998 (RAS); Hornsey, 2001 (MA, gen. det. CWP).

1234 *Pammene regiana* (Zell.)

Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield v–vi.1974 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Fulham, occasional, eg 1986 (JB); Hampstead, most years (RAS); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 19.vi.2000 (MHo); Denham Lock Wood, 1996 (CWP); Hampstead, 2000 (RAS).

1235 *Pammene trauniana* (D. & S.)

Buckingham Palace Garden, between 1965 and 1989, precise data not available (JDB).

1236 *Pammene fasciana* (L.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Winchmore Hill, 1971 and Enfield Highway, 1975 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Ken Wood, 29.vii.1984 (RAS); Osterley Park, 1987 (JDB); Brompton Cemetery, 1 on 14.vii.1997 (TF); Holland Park, 3.viii.1997 and 27.vii.1998 (TF); Hampstead, 2000 (RAS).

1236a *Pammene herrichiana* (Hein.)

Buckingham Palace Garden, 25.vii.1975 (JDB); Osterley Park, 1987 (JDB).

1237 *Pammene germmana* (Hb.)

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

1238 *Pammene ochsenheimeriana* Lien. & (Zell.)

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

1239 *Pammene rhediella* (Cl.)

Enfield 15.vii.1972 (DJLA). Minnion (1959) lists *rheedianana* (Haw.) for Ruislip, but I am unable to find any such species. The name '*rheediella*' is listed in the 1972 Kloet & Hincks Lepidoptera checklist as a misspelling of *rhediella* (Cl.) and it is assumed from the sequence of Minnion's record in the list that this is probably what he meant.

1272 *Pammene aurana* (Fabr.)

Hampstead, most years (RAS); Osterley Park, 1987 (JDB); The Paddock, Tottenham Hale, 1997 (CWP).

1241 *Grapholita compositella* (Fabr.)

Chelsea Creek, 1998 (CWP).

1242 *Grapholita internana* Guen.

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

1245 *Grapholita janthinana* Dup.

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

1247 *Grapholita funebrana* (Tr.)

Included in the late Maitland Emmet's unpublished maps for *MBGBI* currently held by Dr John Langmaid.

- 1251 *Grapholita jungiella* (Cl.)
Ruislip (Minnion, 1959); Enfield 8.v.1975 (DJLA).
- 1254 *Cydia strobilella* (L.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1255 *Cydia succedana* (D.& S.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, (Bradley & Mere, 1966); Hampstead, 1984 (RAS); Denham Lock Wood, 1996 (CWP); Hounslow Heath LNR, 1997 (JH).
- 1257 *Cydia nigricana* (Fabr.)
Included in the late Maitland Emmet's unpublished maps for MBGBI currently held by Dr John Langmaid.
- 1259 *Cydia fagiglandana* (Zell.)
Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Winchmore Hill, 9.ix.1971 (DJLA); Hampstead, 7.7.1986 (RAS det. ESB); Osterley Park, 1987 (JDB); Hyde Park, 1 on 10.vii.1996 (TF).
- 1260 *Cydia splendana* (Hb.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Old Fox Res., Ealing, 20.vii.1975 (JDB); Enfield 1.viii.1978 (DJLA); Hampstead, most years (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Brompton Cemetery, 23–28.vii.1998 (TF); Highgate Wood, 1990, 1992, 1999 (MJH); Hampstead, 2000 (RAS).
- 1261 *Cydia pomonella* (L.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 1972–80 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead Garden Suburb, 1985 (PRH); Hampstead, most years (RAS); Kensal Green, 1981 (MHY); Northwood, 1986 (AMG); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Highgate Wood, 1987, 1989, 1990 (MJH); Potters Bar, 1989, 1996 (JK); Highgate Wood, 5.viii.1989 (MJH); Hodford Road, Child's Hill, 10.vii.1990 (NB); Tottenham Hale, 6.v.1990 (NB); Southall, 26.vi.1990 (JDB); Ealing, 1990 (PAB); West Hampstead, 1993 (DR); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Sunbury, 1995 (DP); Brompton Cemetery, 20.vii. and 17.ix.1998 (TF); Hampstead, 2000 (RAS); Neasden, 10.vi. to 28.vii.2000 (AS).
- 1262 *Cydia amplana* (Hb.)
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1272 now in *Pammene*, after 1239
- 1273 *Dichrorampha petiverella* (L.)
Ruislip (Minnion, 1959); Hampstead, 24.vii.1987 (RAS); Osterley Park, 1987 (JDB); Fir and Pond Wood NR, 8.vi.1995 (JRL).
- 1274 *Dichrorampha alpinana* (Tr.)
Buckingham Palace Garden, 8.vi.1995 (DJC); Hampstead, 2.viii.1982 (RAS); Buckingham Palace Garden, at m.v. on 8.vi.1995 (DJC).
- [1275 *Dichrorampha flavidorsana* Knaggs
Ruislip (Minnion, 1959). Species 1274: *D. alpinana* is not listed by Minnion. The two species can only be separated if bred out or, if wild-caught, by genitalia examination – a fact that was not fully appreciated in 1959. It is highly possible that the identification is correct, but there are no other Middlesex records, whilst there are records of *alpinana* (Tr.) For these reasons, therefore, the record can only be regarded as unconfirmed and admission of this species to the formal Middlesex list must remain provisional.]
- 1276 *Dichrorampha plumbagana* (Tr.)
Natural History Museum Wildlife Garden, South Kensington, 16.v.2000 (MHo).
- 1278 *Dichrorampha sequana* (Hb.)
Osterley Park, 1987 (JDB).
- 1280 *Dichrorampha consortana* (Steph.)
Ruislip (Minnion, 1959).
- 1281 *Dichrorampha simpliciana* (Haw.)
Ruislip (Minnion, 1959); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 28.vii.1976 (DJLA); Hampstead, 1986, 22.viii.1991 and 12.vii.1999 (RAS); Hampstead, 2000 (RAS).

1284 *Dichrorampha gueneeana* Obraz.

Minnion (1959) lists '*Hemimene politana* (Hb.)'. There is no such name as *politana* Hübner, but there are *politana sensu* Denis & Schiffermüller = 1219: *Lathronympha strigana* (already included in the list), *politana* Haworth (= 974: *Argyrotaenia ljunghiana sensu* Thunberg (considered unlikely at that date), and *politana sensu* Guenée = *Dichrorampha gueneeana* Obraz. *Hemimene* is a junior synonym of *Pammene* Hübner. Given the past interchange of species between the two genera *Pammene* and *Dichrorampha* it is fairly clear that this species was intended. There do not appear to be any other Middlesex records.

1285 *Dichrorampha plumbana* (Steph.)

Ruislip (Minnion, 1959).

1287 *Dichrorampha aeratana* (Pierce & Metcalfe)

Natural History Museum Wildlife Garden, South Kensington, 21.vi.2001 (MHo).

EPERMENIIDAE

481 *Epermenia falciformis* (Haw.) = *illigerella* (Hb.)

Ruislip (Minnion, 1959).

483 *Epermenia chaerophyllella* (Goeze)

Natural History Museum Wildlife Garden, South Kensington, 1.viii.2000 (MHo).

SCHRECKENSTEINIIDAE

485 *Schreckensteinia festaliella* (Hb.)

Mapped for Middlesex in MBGBI 3 (1996).

ALUCITIDAE

1288 *Alucita hexadactyla* (L.)

Stamford Hill 'scarce', Tufnell Park, Chiswick '... a long time ago', Crouch End and Mill Hill (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Enfield, e.g., 6.viii.1971 (DJLA); Pinner, regular 1985 to 1992 (WEM); Highgate Wood, 1985, 1994 (MJH); Hampstead Garden Suburb, 1985 (PRH); Hampstead, 1986 (RAS); Hollickwood Avenue, N12, regular (KGVS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); West Hampstead, 1989 (NB); Hodford Road, Child's Hill, 10.vii.1990 (NB); Potters Bar, 1990, 1996 (JK); Sunbury, 1995 (DP); Park Wood, Ruislip, 15.vi.1996 (MH); West Drayton, 28.iv.1987 (MH); Holland Park, 15.v.1998 (TF); Brompton Cemetery, 9.vii.1998 (TF); Hampstead, 2000 (RAS).

PYRALIDAE

1289 *Euchromius ocellea* (Haw.)

The claim of this species to a place on the Middlesex list is tenuous to say the least. Haworth's type specimen was taken in 'the suburbs of London' in early 1912 — and is referred to in *Entom.* 91:124. No more precise locality is given. Later, an adult moth was found by Peter Hall amongst grapes in a depot in Colnbrook, Buckinghamshire (VC24) on 25.xi.1993; these had been air freighted from Western Province, South Africa, via Heathrow Airport, which is in Middlesex! The identity was confirmed by David Agassiz.

1290 *Chilo phragmitella* (Hb.)

Hammersmith Marshes (Cockerell, 1893. *Entom.* 26: 102–105); 'Near River Lea, Coppermill Stream' (Prout, 1902. *Trans. CLENHS* 1901: 54–68) — technically in South Essex, but the reed bed habitat at that time stretched across the vice county boundary at this point in the Lea Valley and it would be incredible to suggest that the moth was not also on our part; Ruislip, 'uncommon' (Minnion, 1957).

1292 *Calamotropha paludella* (Hb.)

Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).

1293 *Chrysoteuchia culmella* (L.)

Evidently common at the end of the nineteenth century, though there is a confusion in the list in Cockerell (1893. *Entom.* 26: 102–105) which has both '*C. hortuellus* Hb.' (Harefield, Isleworth, Bedford Park, Whitton, Finchley and Dalston) and '*C. culmellus* L.' (Harefield, Bedford Park, Finchley and Dalston). These two names are synonymic, with the former junior to the latter. Examination of Cockerell's list reveals that none of the common species are absent and so one of the names does not seem to apply to another common species. It appears that Cockerell simply duplicated this species under two names; Prout's London list (1902. *Trans. CLENHS* 1901: 54–68) also notes both names as separate species, recording *culmellus* L. as 'generally abundant' and *hortuellus* Hb. at Dalston, Hale End, Isleworth, Bedford Park, Chiswick and Holborn; Ruislip, 'common' (Minnion, 1957); Buckingham Palace Garden,

1961–63 (Bradley & Mere, 1964) and 1995–97, common in June and July at m.v. on several dates (DJC) and swept from long grass on mound and by compost heap in 1995 and 1996 (CWP); Enfield 1976 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Middlesex Filter Beds, Lea Bridge, 31.viii.1985 (CWP); Highgate Wood, most years 1985 to 1999 (MJH); Fulham, 1986 (JB); Pinner, regular 1985 to 1992 (WEM); Osterley Park, 1987 (JDB); West Drayton, 24.vi.1987, 8.vii.1987, 12.vii.1987 (MH); Holloway, dead in light fitting, 1988 (NB, det. CWP); Hampstead, most years (RAS); Long Wood, 22.vi.1989 (JDB); Highgate Wood, 16.vii.1989 & 5.viii.1989 (MJH); Hodford Road, Child's Hill, 10.vii.1990 (NB); Tottenham Hale, 17.vi.1990 (NB); St Anne's Hospital, Tottenham, 10.viii.1990 (NB); Alexandra Park, 15.vii.1990 (NB); Brent Reservoir, 11.vii.1990 (NB); Tottenham Marsh, 29.vi.1990 (NB); Potters Bar, 1990, 1996 (JK); Hollickwood Avenue, N12, 30.vi, 7.vii. & 14.viii.1990 (KGVS); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Highgate, at m.v.l., vii.1995 (MJH det. CWP); Hyde Park, many, July 1996 (TF); Hounslow Heath LNR, vi.1997 (JH); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); The Paddock, Tottenham Hale, 1997 (CWP); Holland Park, 1997 (TF); Brompton Cemetery, 2 on 14.vii.1997 and 1 on 17.viii.1997, mant from 7–23.vii.1998 (TF); Holland Park, 3.viii.1997 and vii.1998 (TF); Long Lane Pasture, Finchley, 1999 (CWP); Hampstead, 2000 (RAS); Neasden, recorded from 19.vi. to 30.vii.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1294 *Crambus pascuella* (L.)

Isleworth and Mill Hill (Cockerell, 1893. *Entom.* 26: 102–105); Isleworth, Chiswick, Highgate and Hampstead (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–1963 (Bradley & Mere, 1964) and 1995–1997 (Carter, 2001); Enfield 1979 (DJLA); Hampstead, most years (RAS); Highgate Wood, most years 1985 to 1999 (MJH); Fulham, 1986 (JB); Hanwell, 1987 (PJE); Pinner, regular 1985 to 1992 (WEM); Osterley Park, 1987 (JDB); West Drayton, 8.vii.1987, 12.vii.1987, 22.vi.1988 (MH); Hodford Road, Child's Hill, 10.vii.1990 (NB); Potters Bar, 1990, 1996 (JK); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Hyde Park, 1 on 10.vii.1996 (TF); Cranford, 1994 (JK); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 6–16.vii.1998 (TF); Long Lane Pasture, Finchley, 1999 (CWP); Hampstead, 2000 (RAS); Neasden, 28.viii.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1299 *Crambus hamella* (Thunb.)

Parliament Hill, Hampstead, one in actinic trap on third-floor balcony, 28.viii.1999 (RAS — det. conf. CWP from photographic slide).

1301 *Crambus lathoniellus* Zinck. (= *nemorella* (Hb.), = *pratellus* auctt.)

Harefield, Whitton and Dalston (Cockerell, 1893. *Entom.* 26: 102–105); Chiswick, Highgate and Hampstead (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–1963 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1970s (DJLA); Hampstead, most years (RAS); Highgate Wood, most years 1985 to 1999 (MJH); Pinner, regular 1985 to 1992 (WEM); Denham Lock Wood, 1996 (CWP); Tottenham Hale, 11.vi.1990 (NB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Hampstead, 2000 (RAS); Neasden, 9.vi.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP).

1302 *Crambus perlella* (Steph.)

Harefield 'twice taken', Dalston and Mill Hill (Cockerell, 1893. *Entom.* 26: 102–105); Dalston, Clapton, Chiswick, Highgate and Hampstead (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1970s (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, most years (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Finsbury Park, 1989 (NB); Long Wood, 22.vi.1989 (JDB); Tottenham Hale, 26.vii.1990 (NB); Alexandra Park, 20.vii.1990 (NB); Hyde Park, 1 on 10.vii.1996 (TF); Potters Bar, 1996 (JK); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 20–23.vii.1998 (TF); Highgate Wood, most years 1985 to 1999 (MJH); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1303 *Agriphila selasella* (Hb.)

Hackney Marshes (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Enfield 22.vii.1972 (DJLA); Tottenham Hale, 22.viii.1990 (NB); St Anne's Hospital, Tottenham, 6.viii.1990 (NB); Mayfield Avenue, Ealing, 1990 (PAB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

1304 *Agriphila straminella* (D.& S.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1970s (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Middlesex Filter Beds, Lea Bridge, 31.viii.1985 (CWP); Fir & Pond Wood N. R., 1985 (PGH); Pinner, regular 1985 to 1992 (WEM); Hampstead, most years (RAS); Osterley Park, 1987 (JDB); West Drayton, 30.viii.1987 (MH); Bayhurst Wood, 19.vii.1988 (MH); Alexandra Palace, 1989 (NB); Paddington, 1989 (NB); Tottenham Cemetery, 8.viii.1990 (NB); Tottenham Hale, 19.vii.1990 (NB); St Anne's Hospital, Tottenham, 6.viii.1990 (NB); Alexandra Park, 20.vii.1990 (NB); Brent Reservoir, 11.vii.1990 (NB); Tottenham Marsh, 24.vii.1990 (NB); Brent Lodge, 23.vii.1990 (NB); Potters Bar, 1990 (JK); Hollickwood Avenue, N12, 18, 21 & 22.vii.1990 (KGVS); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Cranford, 1994 (JK); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, 2000 (RAS); Tower Hamlets Cemetery, 2001 (CWP).

1305 *Agriphila tristella* (D.& S.)

Harefield. Whitton, Finchley and Clapton (Cockerell, 1893. *Entom.* 26: 102–105); Hackney Marshes, Hale End, Chiswick and Highgate (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1970s (DJLA); Fir & Pond Wood N. R., 1975 (RD) and 1985 (PGH); Hampstead, most years (RAS); Highgate Wood, most years 1985 to 1999 (MJH); Pinner, 1986 (WEM); Osterley Park, 1987 (JDB); Harrow School, 11.vi.1990 (MT); Tottenham Hale, 31.vii.1990 (NB); St Anne's Hospital, Tottenham, 13.viii.1990 (NB); Potters Bar, 1990, 1994, 1996 (JK); St Mary's Churchyard, Ealing, 1994 (incog.); Hollickwood Avenue, N12, 22.vii.1989 & 14, 21 & 22.viii.1990 (KGVS); West Hampstead, 1993 (DR); Sunbury, 1994 (DP); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Holland Park, 21.viii.1997 (TF); Hounslow Heath LNR, 1997 (JH); Holland Park, 21.viii.1997 (TF); Brompton Cemetery, 17.viii.1998 (TF); Hampstead, 2000 (RAS); Neasden, from 6.viii. to 19.viii.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, 31.viii.2001 (CWP).

1306 *Agriphila inquinatella* (D.& S.)

Highgate and Hampstead (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1971 (DJLA); Upper Clapton (adjacent to Walthamstow Marshes, Essex), 1980 (CWP); Pinner, 1987 (WEM); Brompton Cemetery, 1 on 14.viii.1997 and from 2.vii to 17.viii.1998 (TF); Hounslow Heath LNR, 1997 (JH); Natural History Museum Wildlife Garden, South Kensington, 27.vii.2000 (MHo).

1307 *Agriphila latistria* (Haworth)

Hampstead, one at actinic light on 21.viii.1996 (RAS).

1309 *Agriphila geniculea* (Haw.)

Chiswick, Highgate and Hampstead (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1970s (DJLA); Highgate Wood, most years 1985 to 1999 (MJH); Fir & Pond Wood N. R., 1985 (PGH); Hampstead, most years (RAS); Osterley Park, 1987 (JDB); Hodford Road, Child's Hill, 10.vii.1990 (NB); Wood Green, 15.ix.1990 (NB); St Anne's Hospital, Tottenham, 13.viii.1990 (NB); Hampstead, 1990 (RAS); Potters Bar, 1990, 1996 (JK); Hollickwood Avenue, N12, 14, 17, 21 & 31.viii.1990 (KGVS); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 5 on 5.ix.1997 and from 5–17.ix.1998 (TF); Notting Hill, 1 on 30.viii.1997 (TF); Hounslow Heath LNR, 1997 (JH); Holland Park, 30.viii.1997 (TF); Hampstead, 2000 (RAS); Neasden, 28.viii.2000 (AS); Natural History Museum Wildlife Garden, South Kensington, 2000 (MHo); Tower Hamlets Cemetery, 2001 (CWP); Trent Park, 31.viii.2001 (CWP).

1313 *Catoptria pinella* (L.)

Harefield 'once taken' and Whitton (Cockerell, 1893. *Entom.* 26: 102–105); Highgate Woods (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, first recorded 22.vii.1970 (JDB); Enfield Highway, 1972 (DJLA); Hampstead, 1982 (RAS); Hollickwood Avenue, N12, 17.viii.1991 (KGVS); Brompton Cemetery, 14.vii.–10.viii.1997 and 9.vii–7.viii.1998 (TF).

[1314 *Catoptria margaritella* (D.& S.)

Cockerell (1893. *Entom.* 26: 102–105) lists ‘Whitton (Rendall)’ under the heading of *margaritellus* of Hübner. It is unclear if this is a mistake for the present species — *margaritellus* of Denis & Schiffermüller — or an unknown synonym of a different one. There is, on this basis, insufficient evidence to admit the present species to the Middlesex list, and it must remain in square brackets.]

1316 *Catoptria falsella* (D.& S.)

Hampstead, 4.vii.1993 (RAS); Holland Park, 16.vii.1998 (TF).

1323 *Pediasia contaminella* (Hb.)

Ruislip ‘fairly common’ (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Lock, common 20.vii.1972, Enfield 1975, 1976 (DJLA); Hampstead, 1982 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

1325 *Platytes alpinella* (Hb.)

Buckingham Palace Garden, at m.v. on 3.viii.1995 (DJC).

1328 *Schoenobius gigantella* (D.& S.)

Natural History Museum Wildlife Garden, South Kensington, 8.vi.2000 (MHo). An old record for this species may refer to Middlesex. Samuel Stevens wrote in the *Entomologist*, in 1842, listing finds ‘near Hammersmith’ including a list of Lepidoptera that ‘have nearly all occurred this season in a marshy piece of ground’. One might conclude that this refers to the Hammersmith marshes, although it could have also been from ‘across the water’ in Surrey (MHo — perspnal communication).

1329 *Donacaula forficella* Thunb.

Hampstead, Highgate, Haverstock Hill, Camden Road and Harefield (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip ‘locally common’ (Minnion, 1957); Buckingham Palace Garden, 18.vii.1969 (JDB); Hampstead, 1986 (RAS); Pinner, 1987 (WEM); Osterley Park, 1987 (JDB).

1330 *Donacaula mucronellus* (D.& S.)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964).

1331 see after 1344**1332 *Scoparia subfusca* (Haw.)**

Crouch End ‘2 in 1899’ and Highgate (Prout, 1902. *Trans. CLNHS* 1901: 54 – 68); Enfield Lock, 1972 (DJLA); Buckingham Palace Garden, 18.v.1989 (JDB); Hampstead, 1988 (RAS); Long Wood, 22.vi.1989 (JDB); Harrow School, 11.vi.1990 (MT); Tottenham Hale, 12.vii.1990 (NB).

1333 *Scoparia pyralella* (D.& S.)

Hampstead (Cockerell, 1893. *Entom.* 26: 102–105); Hackney and Highgate (Prout, 1902. *Trans. CLNHS* 1901: 54–68); Ruislip ‘common’ (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 19.v.1974 (DJLA); Alexandra Park, vi.1987 (NB); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Fulham, 26.vi.1988 (JB); Tottenham Hale, 25.vi.1990 (NB); Potters Bar, 1990 (JK); Brompton Cemetery, 29.v.–7.vii.1998 (TF); Highgate Wood, 1992 (MJH); Tower Hamlets Cemetery, 2001 (CWP).

1334 *Scoparia ambigua* (Tr.)

Hampstead (Cockerell, 1893. *Entom.* 26: 102–105); Chiswick (Prout, 1902. *Trans. CLNHS* 1901: 54–68); Ruislip ‘common’ (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1970s (DJLA); Hampstead, regular (RAS); Pinner, regular 1985 to 1992 (WEM); Osterley Park, 1987 (JDB); Long Wood, 22.vi.1989 (JDB); Hodford Road, Child’s Hill, 10.vii.1990 (NB); Mayfield Avenue, Ealing, 1990 (PAB); Hyde Park, 1 on 25.vi.1996 (TF); Denham Lock Wood, 1996 (CWP); Brompton Cemetery, 14.vii.1997 and 14.vii.1998 (TF); Holland Park, 16–27.vii.1998 (TF); Ruislip Lido, 30.vi.2000 (AMG); Neasden, 18.vi.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1334a *Scoparia basistrigalis* Knaggs

Osterley Park, 1987 (JDB); Highgate Wood, one in 1987 (JK); Holland Park, 16–27.vii.1998 (TF); Fulham Palace Gardens (by day) 12.vii.1998 (MHo).

1338 *Dipleurina lacustrata* Panzer = *Eudonia crataegella* (Hb.)

Bayhurst Wood, 1988 (AMG); Tottenham Hale, 30.vi.1990 (NB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Bayhurst Wood, 19.vii.1988 (MH); Neasden, 5.viii.2000 (AS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1336 *Eudonia pallida* Curtis

Hollickwood Avenue, N12, one on 23.ix.1989 (KGVS); Hyde Park, 1 on 17.vii.1996 (TF).

1340 *Eudonia truncicolella* (Stt.)

'Highgate (So.) [Has this last been thoroughly confirmed? L.B.P.]' (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Winchmore Hill, 1971 and Enfield Highway, 1972 (DJLA); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Osterley Park, 1987 (JDB); Holland Park, 16.vii.1998 (TF); Brompton Cemetery, 18.vi.–20.vii.1998 (TF); Highgate Wood, 1999 (MJH).

1342 *Eudonia angustea* Curtis

Highgate Wood, 1985 (MJH); Hampstead, 1986 (RAS); Tottenham Hale, 1989 (NB det. CWP from 35mm photo slide); Brompton Cemetery, 26.ix.1997 and 29.v.1998 (TF); Holland Park, 27.vii.1998 (TF).

1343 *Eudonia delunella* (Stt.)

Ruislip 'common' (Minnion, 1957) — as *resinea* (Haw.).

1344 *Eudonia mercurella* (L.)

Hampstead, Dalston and Kingsbury (Cockerell, 1893. *Entom.* 26: 102–105); Dalston, Clapton, Hale End, Holloway, Highgate and Chiswick (Prout, 1902. *Trans. CLENHS* 1901: 54 – 68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 1972, 1977 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Finsbury Park, 1989 (NB); Hampstead, 19.v.–6.viii.1989 — a three-fold increase over recent years (RAS); Wood Green, 1990 (NB); Tottenham Hale, 18.vi.1990 (NB); Potters Bar, 1990 (JK); West Hampstead, 1993 (DR); Highgate Wood, most years 1985 to 1999 (MJH); Hyde Park, a few, July 1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Brompton Cemetery, 18.vi.1998 (TF); Hampstead, 2000 (RAS); Neasden, 28.vi.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP).

1331 *Acentria ephemerella* (D.& S.)

Hampstead Ponds (Barrett, *Ent. mon. Mag.* 1888: 199); St John's Wood, 'once taken in a shop in the Abbey Road, probably introduced, with watercress or some other aquatic plant, as a larva or a pupa' (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield, 1970s (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Fulham, regular, eg 1986 (JB); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Bayhurst Wood, 19.vii.1988 (MH); Tottenham Hale, 13.vii.1990 (NB); Highgate, 1994 (MJH); Hampstead, regular (RAS); Highgate Wood, most years 1985 to 1999 (MJH); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 28.vii.1998 (TF); Hampstead, 2000 (RAS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1345 *Elophila nymphaeata* (L.)

Hampstead and Highgate Ponds, Harefield and Isleworth (Cockerell, 1893. *Entom.* 26: 102–105); Hackney Marshes, Clapton Marshes, Isleworth and Crouch End (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield Highway, 1972 (DJLA); Crews Hill, several 1977, 1978, 1979 (DJLA); Hampstead, regular (RAS); Denham Canal, 17.vii.1985 (AMG); Northwood, 1985 (AMG); Fulham, 1986 (JB); Pinner, 1990 (WEM); West Drayton, 30.viii.1987 (MH); Ruislip Lido, 2.vi, 2000, 30.vi.2000 & 21.vii.2000 (AMG); Natural History Museum Wildlife Garden, South Kensington, 14.vi.2000 (MHo).

1346 *Elophila diffualis* Snell. (= *enixalis* Swinh.)

Enfield, associated with imported pond plants in greenhouses, 23.vi.1977 (Agassiz, *Ent. Gaz.* 29: 117–127); Many in glasshouses 1977–78 (DJLA).

1347 *Elophila melagynalis* Agassiz

First described new to science from specimens collected in association with pond plants at greenhouses in Enfield, 1977 (Agassiz, *Ent. Gaz.* 29: 117–127).

1347a *Elophila manilensis* Hampson

Enfield, associated with imported pond plants in greenhouses, 1978 (Agassiz, *Ent. Gaz.* 32: 21–26).

1348 *Parapoynx stratiotata* (L.)

Hampstead and Highgate Ponds and Finchley (Cockerell, 1893. *Entom.* 26: 102–105); Tottenham, Hale End, Finchley and Highgate (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Enfield Highway and Enfield Lock, 1972 (DJLA); Fulham, 1986 (JB); Hampstead, 1986 (RAS); Pinner, 1987 (WEM).

1349 *Parapoynx obscuralis* Grote

Crews Hill, 22.vii.1984, 24.ix.1984, 15.vi.1985 in glasshouses where plants had been imported from America (DJLA).

1353a *Parapoynx polydectalis* Walker

Crews Hill, Enfield, associated with imported pond plants in greenhouses, 15.vii.1977 (Agassiz, *Ent. Gaz.* 29: 117–127) then 1978 and 1979 (Agassiz, *Ent. Gaz.* 32: 21–26).

1350 *Nymphula stagnata* Don.

Hampstead and Highgate Ponds and Harefield (Cockerell, 1893. *Entom.* 26: 102–105); Hackney Marshes and Tottenham (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Enfield Highway, 1972 (DJLA); West Drayton, 27.viii.1987, 30.viii.1987 (MH).

1351 *Nymphula diminutalis* (Snellen)

Enfield, associated with imported pond plants in green houses, 23.vi.1977 (Agassiz, *Ent. Gaz.* 29: 117–127).

1351a *Nymphula fluctuosalis* (Zell.)

Crews Hill, Enfield, associated with imported pond plants in greenhouses, 1979 (Agassiz, *Ent. Gaz.* 32: 21–26); Crews Hill, plentiful in glasshouses 1977–1980 (DJLA).

1351b *Nymphula crisonalis* (Walker)

Crews Hill, Enfield, associated with imported pond plants in greenhouses, 25.v.1979 (incorrectly identified as *Parapoynx stagnalis* Zeller in Agassiz, *Ent. Gaz.* 32: 21–26; corrected in Agassiz, *Ent. Gaz.* 33: 122).

1352 *Agassiziella angulipennis* Hampson

Crews Hill, Enfield, associated with imported pond plants in greenhouses, 15.vii.1977 (Agassiz, *Ent. Gaz.* 29: 117–127).

1354 *Cataclysta lemnata* (L.)

Hampstead and Highgate Ponds, Harefield, Finchley and Kingsbury (Cockerell, 1893. *Entom.* 26: 102–105); Hackney Marshes, Clapton Marshes and Lea Bridge Road (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Crews Hill, Enfield several 1977–84 (DJLA); Buckingham Palace Garden, 5.viii.1987 (JDB); Fir & Pond Wood N. R., 1985 (PGH); Pinner, 1987 (WEM); Hampstead Heath Extension, several by ponds in 1989 (RAS); West Hampstead, 1993 (DR); Neasden, 8.vi.2000 (AS); Springwell Reedbed, Harefield, 11.viii.2001 (AMG).

1355 *Synclita oblitalis* Walk.

Crews Hill, Enfield, 1968, established on imported pond plants in nursery hot-houses (Shaffer, *Ent. Gaz.* 19: 155–158), several 1983 & 1988 (DJLA).

1356 *Evergestis forficalis* (L.)

Everywhere is suitable localities (Cockerell, 1893. *Entom.* 26: 102–105); ‘Generally common’ (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip ‘common’ (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield Highway, 1972 (DJLA); Arlington Square, 1980 (MG); Kensal Green, 1981 (MHy); Hampstead, 1986 (RAS); West Drayton, 20.v.1985, 29.viii.1985, 30.viii.1987 (MH); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Alexandra Park, 15.ix.1987 (NB); Tottenham Hale, 19.viii.1987, 18.viii.1990 (NB); Potters Bar, 1989, 1996 (JK); Mayfield Avenue, Ealing, 1990 (PAB); Harrow, 1996 (JHo); Tower Hamlets Cemetery, 2001 (CWP); Highgate Wood, 2001 (MJH).

1357 *Evergestis extimalis* (Steph.)

Arlington Square, 1980 (MG); Buckingham Palace Garden, first recorded 10.viii.1981 (JDB); Fulham, 1986 (JB); Hampstead, in the balcony trap, 2.viii.1990 and another on 5.viii.1995 (RAS).

1358 *Evergestis pallidata* Hufn.

Ruislip (Minnion, 1957); Hampstead, 1982 (RAS); Osterley Park, 1987 (JDB); Hampstead Heath, fairly frequent from 16.vii. to 29.vii.1989 in dark secondary woodland with elder and nettles (RAS); Brent Reservoir, 11.vii.1990 (NB); Neasden, 31.vii.2000 (AS).

1361 *Pyrausta aurata* (Scop.)

Hampstead ‘field at Finchley end of Bishops Wood’ (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip ‘common’ (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield, 1974–75, larvae on garden mint (DJLA); Fulham, 1986 (JB); Tottenham Hale, v.1987 (NB); Pinner, 1987 (WEM); Hampstead: normally double-brooded, with one on 3.ix.1984, and the second brood running to 23.vii. in 1990 with a singleton on 15.x.1990 (RAS); Potters Bar, 1990 (JK); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Sunbury, 1995 (DP); Harrow, 1996 (JHo); Hounslow Heath LNR, 1997 (JH); Brompton Cemetery, 17.viii.1998 (TF); Pinner, 23.viii.1998 (MZ); Hampstead, 2000 (RAS); Neasden, from 18.vi. to 21.viii.2000 (AS); Highgate Wood, 2001 (MJH).

1362 *Pyrausta purpuralis* (L.)

Harefield 'frequent' (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip (Minnion, 1957); Buckingham Palace Garden, 21.vii.1982 (JDB); Hanwell, 1987 (PJE); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Tottenham Hale, 2.v.1990 (NB); Harrow, 1996 (JHo); Neasden, 18.viii.2000 (AS).

1363 *Pyrausta ostrinalis* (Hb.)

Ruislip 'common' (Minnion, 1957).

1368 *Loxostege sticticalis* (L.)

Grays Inn Gardens, 1880 (Meldola *Entom.* 1887: 235).

1370 *Sitochroa palealis* (D. & S.)

Hampstead–Parliament Hill Fields, 3.viii.1996, on line of a new gas main recently sown with a mix including *Daucus carota*, a plant not previously recorded on Hampstead Heath (RAS); Feltham Marshalling Yards, vii.1997 (JH); Hounslow Heath LNR, 27.vii.1997 (JH).

1371 *Sitochroa verticalis* (L.)

Ruislip 'fairly common' (Minnion, 1957); 1957); Buckingham Palace Garden, (Bradley & Mere, 1966); Hackney Marsh, 1972 (DJLA); Enfield 18 & 20.vii.1972, 16.vii.1980 (DJLA); Hampstead, 1980 (RAS); Camley Street Nature Park, Kings Cross, 14.vii.1985 (RAS); Middlesex Filter Beds, Lea Bridge, 31.viii.1985 —especially numerous, kicked out of almost all rough herbage by track sides (CWP); Fulham, 1986 (JB); Hampstead, 5.vii.1986 (RAS); Osterley Park, 1987 (JDB); Alexandra Park, 20.vi.1990 (NB); Tottenham Hale, 6.viii.1990 (NB); Buckingham Palace Garden, at m.v. on 6.vii.1995 (DJC); Hounslow Heath LNR, 11.vi.1997 (JH).

1374 *Paratalanta hyalinalis* (Hb.)

Osterley Park, 1987 (JDB).

1375 *Ostrinia nubilalis* (Hb.)

A rare immigrant to Britain until the 1930s. Ruislip 'uncommon' (Minnion, 1957); Hampstead Heath Extension, vii.1950 (AA); Feltham, two at light on 19.vii.1955 — one male, one female (Classey, *Ent. Gaz.* 6: 230); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield area, 1971–80, bred viii.1977 (DJLA); Arlington Square, 1980 (MG); Colherne Court, SW5, one taken on 6.viii.1981 (SAKJ); Pinner, 1985 (WEM); Hollickwood Avenue, N12, one on 29.vii.1984 (KGVs); Hampstead, 1984, 1987 (RAS); Fulham, 1986 (JB); Camley Street Nature Park, 1986 (RAS); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Chelsea Creek, 1998 (CWP); Culford Road, N1, 4.vi.1989 (anon.); Long Wood, 22.vi.1989 (JDB); Mayfield Avenue, Ealing, 1990 (PAB); Harrow, 1996 (JHo); The Paddock, Tottenham Hale, 1997 (CWP); West Hampstead, 28.vii.1998 (DR); Brompton Cemetery, 24.vi. and 20.vii.1998 (TF); Neasden, from 17.vi. to 29.vii.2000 (AS); Natural History Museum Wildlife Garden, South Kensington, 14.vi.2000 (MHo); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1376 *Eurrhynx hortulata* (L.)

'Everywhere in suitable localities' (Cockerell, 1893. *Entom.* 26: 102–105) — actual localities given are Harefield, Bedford Park, Isleworth, Highgate and Dalston; Dalston, Hackney Marshes, Clapton etc., Bedford Park, Isleworth and Chiswick 'Probably almost everywhere. — L.B.P.' (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 1974 (DJLA); Arlington Square, 1980 (MG); Kensal Green, 1981 (MHy); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead Garden Suburb, 1985 (PRH); Hampstead, regular (RAS); West Drayton, 29.viii.1985, 24.vi.1987, 8.vii.1987, 9.vii.1987, 12.vii.1987, 22.vi.1988 (MH); Ickenham, 1986 (Sue Place, per AMG); Hanwell, 1987 (PJE); Fulham, regular in 1980s (JB); Osterley Park, 1987 (JDB); Hodford Road, Child's Hill, 12.vi.1987 (NB); Bayhurst Wood, 19.vii.1988 (MH); Potters Bar, 1989, 1996 (JK); Harrow School, 1989 (MT); Long Wood, 22.vi.1989 (JDB); Darlands Lake, at m.v. light 23.vi.1990 (AMG/MHg); Tottenham Hale, 30.v.1990 (NB); St Anne's Hospital, Tottenham, 26.vii.1990 (NB); Alexandra Park, 25.vi.1990 (NB); Tottenham Marsh, 5.vii.1990 (NB); Mayfield Avenue, Ealing, 1990 (PAB); Sunbury, 1990 (DP); Chiswick Triangle N. R., 1993 (incog.); Hyde Park, 1993 (TF); West Hampstead, 1993 (DR); Holland Park, 24–29.vi.1993 (TF); Hyde Park, a few, end-June to mid-July 1996 (TF); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Harrow, 1996 (JHo); Denham Lock Wood, 1996 (CWP); Chelsea Creek, 1998 (CWP); Brent Reservoir banks, 1998 (AS); Holland Park, 24–29.vi.1993 and 19.v.–20.vi.1998 (TF); Ruislip Lido, 7.vii.2000 (AMG); Neasden, from 17.vi. to 19.viii.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).

- 1377 *Perinephela lancealis* (D. & S.)
Ruislip 'common' (Minnion, 1957).
- 1378 *Phlyctaenia coronata* Hufn.
Harefield, Bedford Park, Whitton, Tufnell Park, Dalston and St John's Wood (Cockerell, 1893. *Entom.* 26: 102–105); Hackney Marshes, Dalston, Hoxton, Clapton, Stamford Hill, Chiswick, Bedford Park, Crouch End and St John's Wood (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, first recorded 104.vii.1969 (JDB) and noted during the 1995–97 survey (Carter, 2001); Arlington Square, 1980 (MG); Northwood, 1985 (AMG); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, regular (RAS); Pinner, 1986 (WEM); Hanwell, 1987 (PJE); Osterley Park, 1987 (JDB); West Drayton, 8.vii.1987, 12.vii.1987 (MH); Potters Bar, 1989 (JK); Tottenham Hale, 27.vi.1990 (NB); Mayfield Avenue, Ealing, 1990 (PAB); Chiswick Triangle N. R., 1993 (incog.); Hyde Park, 1993 (TF); West Hampstead, 1993 (DR); Hyde Park, 1 on 24.vi.1993 (TF); Buckingham Palace Garden, at m.v. on 28.vii.1995 (DJC); Harrow, 1996 (JHo); The Paddock, Tottenham Hale, 1997 (CWP); Brompton Cemetery, 10.viii.1997, 9.vii. and 23.vii.1998 (TF); Holland Park, 6.vii.1998 (TF); Neasden, from 19.vi. to 9.ix.2000 (AS); Natural History Museum Wildlife Garden, South Kensington, 19.vi. & 19.vii.2000 (MHo).
- 1380 *Phlyctaenia perlucidalis* (Hb.)
Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).
- 1381 *Anania funebris* Ström
Parsons (1993) states that there are records for Middlesex prior to 1970 but gives no details.
- 1385 *Ebulea crocealis* Hb.
Southall, 16 July 1890 (Prout, 1902. *Trans. CLENHS* 1901: 54–68).
- 1386 *Opsibotys fuscalis* (D. & S.)
Harefield 'common' (Cockerell, 1893. *Entom.* 26: 102–105).
- 1388 *Udea lutealis* (Hb.)
Whitton (Cockerell, 1893. *Entom.* 26: 102–105); Mill Hill and Finchley (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–1963 (Bradley & Mere, 1964); Northwood, 1985 (AMG); Fir & Pond Wood N. R., 1985 (PGH); Hampstead, regular (RAS); Pinner, 1986 (WEM); Osterley Park, 1987 (JDB); Alexandra Park, 15.vii.1990 (NB); Potters Bar, 1990 (JK); Cranford, 1996 (JK); Tower Hamlets Cemetery, 2001 (CWP).
- 1390 *Udea prunalis* (D. & S.)
Whitton, Tufnell Park and Tottenham (Cockerell, 1893. *Entom.* 26: 102–105); Stamford Hill, Tottenham, Hale End, Mill Hill, Finchley and Chiswick (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957).
- 1392 *Udea olivalis* (D. & S.)
Harefield, Bedford Park, Whitton and Tottenham (Cockerell, 1893. *Entom.* 26: 102–105); Stamford Hill, Tottenham, Hale End, Mill Hill and Finchley (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, regular (RAS); Pinner, 1986 (WEM); Osterley Park, 1987 (JDB); West Drayton, 10.vi.1987, 22.vi.1988 (MH); Coppets Wood, 25.vi.1988 and 9.vi.1989 (KGVS); Bayhurst Wood, 19.vii.1988 (MH); Harrow School, 1989 (MT); Long Wood, 22.vi.1989 (JDB); Darlands Lake, at m.v. light 23.vi.1990 (AMG/MHg); Alexandra Park, 1987 & 5.vi.1990 (NB); West Hampstead, 1993 (DR); Buckingham Palace Garden, at m.v. on 15.vi.1995 and 27.vi.1996 (DJC); Park Wood, Ruislip, 15.vi.1996 (MH); Brompton Cemetery, a few on 2.vii.1993 (TF); Holland Park, 28.v.1998 (TF); Highgate Wood, regular 1993 to 1999 (MJH); The Paddock, Tottenham Hale, 1997 (CWP); Ruislip Lido, 2.vi.2000 (AMG); Neasden, 9–20.vi.2000 (AS); Natural History Museum Wildlife Garden, South Kensington, 12.vi. & 14.vi.2000 (MHo); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).
- 1395 *Udea ferrugalis* (Hb.)
North London and Crouch End (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'not uncommon' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, 1984 (RAS); Fulham, 1986 (JB); Hyde Park, 1 on 25.vi.1996 (TF); Highgate Wood, 1996 (MJH).
- 1398 *Nomophila noctuella* (D. & S.)
Harefield 'common', Whitton and Northwood (Cockerell, 1893. *Entom.* 26: 102–105); Victoria Park, Tottenham and Chiswick (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'usually

common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Hampstead, regular (RAS); Fulham, regular (JB); Osterley Park, 1987 (JDB); Mayfield Avenue, Ealing, 3.x.1994 (PAB); Buckingham Palace Garden, at m.v. on 4.vii.1996 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Park Wood, Ruislip, 15.vi.1996 — 2 adults (MH); Hyde Park, many, mid-June to start-July 1996 (TF); Potters Bar, 1996 (JK); Harrow, 1996 (JHo); Brompton Cemetery, a few 14–30.vii.1997, 9.vii. and 17.viii.198 (TF); Holland Park, 15.v.1998 (TF); Highgate Wood, 1996, 1998 (MJH); Neasden, from 25.vi. to 23.x.2000, with a peak of 11 on 21.viii.2000 (AS).

1401 *Maruca vitrata* (Fabr.) Mung moth

West Hampstead, one at fluorescent tube light in a first-floor flat, 15.viii.2000 (KDR).

1405 *Pleuroptya ruralis* (Steph.)

'Everywhere in suitable localities' (Cockerell, 1893. *Entom.* 26: 102–105) — localities given were Harefield, Isleworth, Bedford Park, Whitton and Highgate; 'Apparently in all suitable places' (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Fir & Pond Wood N. R., 1975 (RD); Old Fox Res., Ealing, 20.vii.1975 (JDB); Arlington Square, 1980 (MG); Kensal Green, 1981 (MHy); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, regular (RAS); West Drayton, 29.viii.1985, 12.vii.1987 (MH); Osterley Park, 1987 (JDB); Fulham, regular eg 1986 (JB); Highgate Wood, 1987 (MJH); Bayhurst Wood, 19.vii.1988 (MH); Hodford Road, Child's Hill, 30.vii.1987 (NB); Tottenham Hale, 11.vii.1990 (NB); Alexandra Park, 4.ix.1987, 17.vii.1990 (NB); Potters Bar, 1990, 1996 (JK); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); St Mary's Churchyard, Ealing, 1994 (anon); Sunbury, 1994 (DP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 1996 (JHo); The Paddock, Tottenham Hale, 1997 (CWP); Brompton Cemetery, 10.viii.1997 and 9–28.vii.1998 (TF); Holland Park, 3.viii.1997 and 16–27.vii.1998 (TF); Brent Reservoir banks, 1998 (AS); Mabey's Meadow N. R., 24.vii.1998 (DR); Chelsea Creek, 1998 (CWP); Ruislip Lido, 30.vi.2000 (MHg); Neasden, from 25.vii. to 26.viii.2000 (AS); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP); Springwell Reedbed, Harefield, 11.viii.2001 (AMG & MHg).

1408 *Palpita unionalis* (Hb.)

Ruislip '1 record only' (Minnion, 1957); Hampstead, 1 at actinic trap on balcony, 25.ix.1997 (RAS).

1410 *Agrotera nemoralis* (Steph.)

Listed in Meyrick's *Handbook* (1895: page 406) as 'Kent, Surrey, Middlesex, local'. The later listing by Parsons (1993) for 'Middlesex prior to 1970' also relates to this record.

1412 *Sceliodes laisalis* Walk.

First recorded as British from Hampton, in ix.1973 (Chalmers-Hunt. *Ent. Rec.* 96: 123); West End Road, Ruislip, early June 1995 — a male and a female (RT — specimens in coll. CWP).

1413 *Hypsopygia costalis* (Fabr.)

Kentish Town, Highgate, Whitton, Dalston, Kingsbury, Mill Hill and Northwood (Cockerell, 1893. *Entom.* 26: 102–105); 'Widely distributed, including Hungerford Bridge, Charing Cross, Newington Green. Especially abundant in 1899 at Crouch End and Highgate and 25/7/98 about a small hayrick, at Chiswick, where it is perhaps our most abundant pyrale' (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Northwood, 1977 (AMG); Enfield 1976, 1980 (DJLA); Arlington Square, 1980 (MG); Kensal Green, 1981 (MHy); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead, regular (RAS); Fulham, regular (JB); Pinner 1986 (WEM); Osterley Park, 1987 (JDB); West Drayton, 8.vii.1987, 12.vii.1987 (MH); Tottenham Hale, 11.x.1990 — possible second brood — (NB); Mayfield Avenue, Ealing, 1990 (PAB); Hyde Park, 1993 (TF); West Hampstead, 1993 (DR); Holland Park, 22.vi.1993 (TF); Harrow, 1996 (JHo); Hounslow Heath LNR, 1997 (JH); Hyde Park, May to July 1996 (TF); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Uxbridge, 7.x.1995 (MH); Brompton Cemetery, 14.vii.–27.ix.1997, 7.vii.–6.ix.1998 (TF); Holland Park, 22.vi.1993 and 16.vii. & 18.ix.1998 (TF); Neasden, from 18.vi. to 13.vii.2000 (AS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1415 *Orthopygia glaucinalis* (L.)

Millfield Lane, Harefield 'frequent', Bedford Park, Whitton, Mill Hill 'sometimes abundant at sugar' (Cockerell, 1893. *Entom.* 26: 102–105); Mile End (Prout, 1902. *Trans. CLENHS 1901*: 54–68); Ruislip 'common' (Minnion, 1957); Winchmore Hill, 15.viii.1971 (DJLA);

Hampstead, regular. Recorded from 18.vi onwards. 'There is a second generation here, usually in September'. During 1996 adults were seen in July and again on 8 and 13 October (RAS); Pinner, regular 1985 to 1992 (WEM); Mayfield Avenue, Ealing, 1990 (PAB); Buckingham Palace Garden, at m.v. on 20.vii.1995 (DJC); Hyde Park, 1 on 17.x.1995 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 1996 (JHo); Brompton Cemetery, 3 from 14.vii.–27.ix.1997, 8 from 18.vi.–28.vii.1998 (TF); Fraysleigh, 23.ix.2000 (MHg); Neasden, from 19.vi. to 18.vii.2000 (AS); Ruislip Lido, 21.vii.2000 (AMG & MHg).

1417 *Pyralis farinalis* (L.)

Kentish Town, Harefield 'occasional', Whitton, Highgate, Dalston, Hampstead, Kingsbury and Kilburn (Cockerell, 1893. *Entom.* 26: 102–105); City, Liverpool Street, Dalston, Hale End and Clapton (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Hollickwood Avenue, N12, one on 26.viii.1984 (KGVS); Fulham, 25.vi.1987 (JB); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 1996 (JHo); Parliament Court, Hampstead, 1 in light trap on balcony, 30.vi.1998 (RAS); Holland Park, 6.vii.1998 (TF).

[1419 *Pyralis pictalis* (Curtis)]

Limehouse, 1890 (Barrett. 1890. *Ent. mon. Mag.* 1890: 138; repeated in Cockerell, 1893. *Entom.* 26: 102–105) and mentioned in both Beirne (1952) and Goater (1986).

1420 *Aglossa caprealis* (Hb.)

Chiswick 'several at one locality — now destroyed — in 1898, 1899 and 1900, earliest date 26/6/99, latest 12/9/00' (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Fulham, 21.vii.1981 (JB det. CWP).

1421 *Aglossa pinguinalis* (L.)

Harefield 'common', Whitton, Dalston and Mill Hill (Cockerell, 1893. *Entom.* 26: 102–105); Hackney, Dalston and Stamford Hill (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'fairly common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Fulham, 1987 (JB); Enfield 1.viii.1977 (DJLA); Alexandra Park, 20.vii.1990 (NB).

[1422 *Aglossa dimidiata* (Haw.)]

A specimen in The Natural History Museum is labelled 'London Docks'. This probably relates to Middlesex, though there were also active docks in the South Essex and Surrey portions of London.]

1424 *Endotricha flammealis* (D. & S.)

Harefield 'taken twice', Whitton and Northwood (Cockerell, 1893. *Entom.* 26: 102–105); Chiswick, Highgate ('abundant in 1900') and Highgate Woods (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield 1971, 1977 (DJLA); Northwood, 1978 (AMG); Arlington Square, 1980 (MG); Kensal Green, 1981 (MHY); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Fulham, 1987 (JB); Tottenham Hale, 20.vii.1990 (NB); St Anne's Hospital, Tottenham, 6.viii.1990 (NB); Alexandra Park, 12.vii.1990 (NB); Potters Bar, 1990, 1996 (JK); Hollickwood Avenue, N12, 1.viii.1970, 8.vii.1973, 4. & 29.vii.1990 (KGVS); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Chiswick Triangle N. R., 1993 (incog.); Highgate Wood, at m.v.l., 21.vii.1995 (MJH det. CWP); Hyde Park, a few, mid-July 1996 (TF); Harrow, 1996 (JHo); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHg); Brompton Cemetery, 14.vii.–10.viii.1997 and 18.vi.–17.viii.1998 — numerous both years (TF); Holland Park, 3.viii.1997 and vii.1998 (TF); Notting Hill, 1 on 26.vi.1997 (TF); Brent Reservoir banks, 1998 (AS); Neasden, from 1.vii. to 8.viii.2000 (AS).

1425 *Galleria mellonella* (L.)

Harefield, 'very frequent, sometimes injurious, causing destruction of weak hives' (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip — '1 record only' (Minnion, 1957); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Hampstead, one on 22.viii.1983 and one on 17.vii.1990 (RAS); Pinner, undated — mid-1980s (WEM); Hampstead — one in 1983, one each year from 1990 to 1994, 13 in 1995, 12 in 1996 then 30 in 1997 (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Highgate Wood, 1995 (MJH); Harrow, 1996 (JHo).

1426 *Achroia grisella* (Fabr.)

Harefield (Cockerell, 1893. *Entom.* 26: 102–105); Buckingham Palace Garden, first recorded 17.vii.1989 (JDB); Enfield 8.vi.1980 (DJLA); Hampstead, one or two most years (RAS — 1997 statement); Fulham, 1987 (JB); Hampstead, 11.vii.1989 (RAS).

1427 *Corcyra cephalonica* (Stt.)

'London Docks' (Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1428 *Aphomia sociella* (L.)

Harefield, Whitton and Northwood (Cockerell, 1893. *Entom.* 26: 102–105); Ruislip — fairly common (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Old Fox Res., Ealing, 20.vii.1975 (JDB); Arlington Square, 1980 (MG); Colherne Court, SW5, one taken on 6.viii.1981 (SAKJ); Highgate Wood, most years 1985 to 1999 (MJH); Hampstead Garden Suburb, 1985 (PRH); Hampstead, regular (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); West Drayton, 5.vii.1987, 7.vii.1987 (MH); St Anne's Hospital, 30.vii.1987 (NB); Coppets Wood, 18.vi.1989 (KGVS); Hollickwood Avenue, N12, regular (KGVS); Darlands Lake, at m.v. light 23.vi.1990 (AMG/MHg); Hodford Road, Child's Hill, 10.vii.1990 (NB); Tottenham Hale, 27.vi.1990 (NB); Alexandra Park, 17.vii.1990 (NB); Potters Bar, 1990, 1996 (JK); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 1993 (DR); Denham Lock Wood, 1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 1996 (JHo); The Paddock, Tottenham Hale, 1997 (CWP); Holland Park, 15.v.1998 (TF); Brompton Cemetery, 29.v.–9.vii.1998 (TF); Hampstead, 1 on 13.ix.2000 is later than the norm (RAS); Mill Hill Golf Course, at m.v. light, 1.vii.2001 (CWP).

1430 *Paralipsa gularis* (Zell.)

'A specimen of this introduced species was taken by myself in Moor Lane, Finsbury, July 15 1932' (S. Wakely. *Entom.*, 65: 229); Ruislip — '1 record only' (Minnion, 1957).

1431 *Arenipses sabella* Hampson

A larva was found on 3 May 1917 feeding on dates bought in London (Goater, 1986).

1433 *Cryptoblabes bistriga* (Haw.)

Highgate Woods (Cockerell, 1893. *Entom.* 26: 102–105); Highgate (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957).

1434 *Cryptoblabes gnidiella* (Mill.)

First recorded in Britain when it was bred from a larva in a Jaffa orange purchased at a London street stall (Wakeley, *Entomologist* 70: 71 & Goater, 1986).

[1435 *Acrobasis tumidana* (D. & S.)

Recorded in error. Ruislip — recorded without comment in Minnion (1957), but withdrawn two years later in Minnion (1959); the two examples reported from Buckingham Palace Garden, at m.v. on 6.vii.1995 in *Proc. Trans. SLENHS*. 1963 (2): 67 were, in error for *tumidella* ss Zincken (= 1436: *Conobathra repandana*). (*vide* Skinner, B., 1995. *Ent. Rec. J. Var.* 107: 241–242).]

1436 *Acrobasis repandana* (Fabr.)

Bishop's Wood (Cockerell, 1893. *Entom.* 26: 102–105); Highgate Woods (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, at m.v. on Buckingham Palace Garden, 1961–63, incorrectly reported as *tumidana* (Bradley & Mere, 1964 – *vide* Carter, 2001) and 1995–97 (Carter, 2001); Hampstead, 1984 (RAS, spec in coll. DS); Fulham, 1986 (JB det. CWP); 27.vi.1995 (DJC); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

1437 *Acrobasis consociella* (Hb.)

Bishop's Wood and Mill Hill (Cockerell, 1893. *Entom.* 26: 102–105); Highgate Woods (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Hyde Park, 1 on 17.vii.1996 (TF).

1438 *Trachycera suavella* (Zinck.)

Ruislip (Minnion, 1957); Buckingham Palace Garden, 20.vii.1995 (DJC); Fulham, 23.vii.1984 (JB det. CWP); Hampstead, 9.viii.1985 (RAS); Pinner, 1987 (WEM).

1439 *Trachycera advenella* (Zinck.)

Highgate Road, Mill Hill and Northwood (Cockerell, 1893. *Entom.* 26: 102–105); Buckingham Palace Garden, first recorded 30.vii.1975 (JDB) but not noted in the 1995–97 survey (Carter, 2001); Hampstead, regular (RAS); Fulham, 15.viii.1986, 1.ix.1987, 8.viii.1988 & 16.viii.1988 (JB); Mayfield Avenue, Ealing, 1990 (PAB); West Hampstead, 21.vii.1994 (DR); Hounslow Heath LNR, 1997 (JH); Holland Park, 16.vii.1998 (TF); Brompton Cemetery, 7.vii.1998 (TF); Neasden, 5.viii.2000 (AS).

1445 *Pempelia formosa* (Haw.)

Hackney Marshes (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Hampstead, 7.7.1983 (RAS); Fulham, 12.vii.1987 (JB); Osterley Park, 2.vii.1987 (JDB); Brompton Cemetery, 1 on 14.vii.1997 (TF).

1447 *Sciota hostilis* (Steph.)

Osterley Park, 2.vii.1987 (JDB).

1449 *Elegia similella* (Zincken)

Ruislip 'not uncommon' (Minnion, 1957); Hampstead, 7.7.1980 (RAS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1450 *Ortholepis betulae* (Goeze)

Highgate Woods and Northwood (Cockerell, 1893. *Entom.* **26**: 102–105); Hale End and Highgate Wood (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip '1 record only' (Minnion, 1957) — presumably the Northwood record; Hampstead, at light on 18.vi.1985 and 23.viii.1989 (RAS det. BG), the former incorrectly implied as relating to 1989 in the microlepidoptera review by Agassiz (1991. *Ent. Rec.* **103**: 153).

1451 *Pyla fusca* (Haw.)

Ruislip 'fairly common' (Minnion, 1957); Buckingham Palace Garden, (Bradley & Mere, 1966); Fulham, 1986 (JB); Hampstead, 6.vii.1986 (RAS det. BG); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Hounslow Heath LNR, viii.1997 (JH).

1452 *Phycita roborella* (D.& S.)

Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Enfield bred 20.vii.1977 (DJLA); Hampstead, 1985, 1990 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Hyde Park, 1 on 10.vii.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 27.vii.2000 (MHo); Brompton Cemetery, 14.vii.1997 and 24.vi.–17.viii.1998 (TF); Holland Park, 16–27.vii.1998 (TF); Highgate Wood, 1998 (MJH); Neasden, 13.vii.2000 (AS); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1454 *Dioryctria abietella* (D.& S.)

Ruislip '1 record only' (Minnion, 1957); Enfield Highway, 19.vii.1972 (DJLA); Fulham, 27.vi.1987 (JB det. CWP); West Hampstead, 3.viii.1994 (DR); Brompton Cemetery, one on 7.vii.1998 (TF); Highgate Wood, 1995 (MJH).

1455 *Dioryctria simpliciella* Heinemann = *mutatella* Fuchs

Enfield 18.vii.1972, 23.vii.1977 (DJLA); Hampstead, one each on 14.vii.1988, 10.vii and 26.vii.1989 (RAS det. MS).

1457 *Hypochalcia ahenella* (D.& S.)

Highgate (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998).

1458 *Myelois circum.v.oluta* (Geoffroy)

Hackney Marshes (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Chiswick, larvae boring the burs and stem of *Arctia lappa* (*SLENHS* 1953–54: 12); Ruislip 'fairly common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 1971, 1972 and 1975 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, 1984 (RAS); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Long Wood, 22.vi.1989 (JDB); Chiswick Triangle N. R., 1993 (incog.); West Hampstead, 1993 (DR); Hyde Park, a few, late-June to mid-July 1996 (TF); Hounslow Heath LNR, 1997 (JH); The Paddock, Tottenham Hale, 1997 (CWP); Holland Park, 6.vii.1998 (TF); Ruislip Lido, 17.vi.2000 & 30.vi.2000 (AMG & MHg); Neasden, from 26.vi. to 18.vii.2000 (AS).

1460 *Apomyelois ceratoniae* (Zell.)

The record from 'London Docks' (Griffith, *Ent. mon. Mag.* 1890: 120), also noted in Goater (1986), is included in the Middlesex list by Cockerell in 1893 (*Entom.* **26**: 102–105); Buckingham Palace Garden, 6.vi.1980 (Carter, 2001).

1461 *Assara terebrella* Zincken

Osterley Park, 1987 (JDB); Fulham, a fresh specimen on 19.vii.1988 — seen by CWP (JB).

1461a *Eccopisa effractella* (Zell.)

Buckingham Palace Garden, one at m.v. light on 3.vii.1995 (DJC) was new to Britain (*vide* Agassiz, *Em. Gaz.* **47**: 181–183).

1465 *Nephopteryx angustella* (Hb.)

Hampstead, 19.vii.1990 & 29.viii.1992 (RAS).

1466 *Mussidia nigrivenella* Ragonot

A specimen was taken in a London cocoa warehouse on 18.vi.1930 (*Ent. mon. Mag.* **66**: 258 and Goater, 1986).

1467 *Ancylosis oblitella* (Zell.)

Mill Hill, one at light on 1.vii.1960 (Goater, *Ent. Gaz.* **25**: 86); Enfield 21.vi, 7.vii, 24.vii.1976 (DJLA); Buckingham Palace Garden, 5.viii.1976 (JDB); Tottenham Hale, 27.vi.1990 (NB).

1469 *Euzophera cinerosella* (Zell.)

Buckingham Palace Garden, 30.vi.1970 (JDB); Enfield, 18.vii.1978 (DJLA); Hyde Park, 1 on 28.vi.1993 (TF).

1470 *Euzophera pinguis* (Haw.)

Regent's Park (Cockerell, 1893. *Entom.* 26: 102–105); Hackney (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'fairly common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964) and 1995–97 (Carter, 2001); Winchmore Hill 22.viii.1971 (DJLA); Fulham, 1986 (JB); Osterley Park, 1987 (JDB); Hampstead, 1986, 1988 (RAS); West Drayton, one at m.v. on 12.vii.1987 (MH); Pinner, 1987 (WEM); West Hampstead, 1993 (DR); Hyde Park, 1 on 25.viii.1996 (TF); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Harrow, 1996 (JHo); Holland Park, 3–21.viii.1997 and 6.vi.1998 (TF); Hounslow Heath LNR, 1997 (JH); Brompton Cemetery, 18.vi.–28.vii.1998 (TF); Neasden, from 28.vii. to 17.viii.2000 (AS).

1473 *Ephestia elutella* (Hb.)

Somers Town, Kentish Town and Dalston (Cockerell, 1893. *Entom.* 26: 102–105); City of London (*Ent. mon. Mag.* 21: 164); Kentish Town (*Entom.* 26: 104); Hackney, Dalston, Hammersmith and Chiswick (Prout, 1902. *Trans. CLENHS* 1901: 54 – 68); Ruislip 'fairly common' (Minnion, 1957) — it is not clear if the specimens were dissected; Buckingham Palace Garden, 7.vii.1969 (JDB); Brompton Cemetery, two on 29.v.1998 (TF).

1474 *Ephestia parasitella* Stdgr.

'Recorded somewhat doubtfully from a warehouse in London' (*Ent. mon. Mag.* 21: 164); Wraysbury — east bank of reservoir, vi.1987 (SC, det. PHS); Fulham, 1 on 4.vii.1987 (JB, det. CWP on genitalia); Osterley Park, 1987 (JDB); Buckingham Palace Garden, during the 1961–63 survey (Bradley & Mere, 1964) and one at m.v. on 1.vi.1995 (DJC); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1475 *Ephestia kuehniella* (Zell.)

'London' (Cockerell, 1893. *Entom.* 26: 102–105); City of London, (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Hoxton (*Ent. mon. Mag.* 30: 86); Ponders End, common in flour mill, 8.i.1975 (DJLA) — also specimens from here in the collection of the late E. S. Bradford; Fulham, 14.v.1988 (JB).

1476 *Ephestia cautella* (Walker)

City of London (Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1477 *Ephestia figulilella* (Gregson)

Hackney and the City of London (Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1478 *Ephestia calidella* (Guen.)

Hackney and the City of London (Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1479 *Plodia interpunctella* (Hb.)

Hackney (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Colherne Court, SW5, one taken on 19.vi.1981 (SAKJ); Mayfair, one flew across the room during a meeting of the British Entomological & Natural History Society in South Audley Street during the evening of 26.ix.1985 and was promptly captured (several observers); Holloway, dead in light fitting, 1988 (NB det. CWP); Hampstead, regular at light (RAS); Tottenham Hale, 18.viii.1990 (NB); West Hampstead, 1993 (DR); Mayfield Avenue, Ealing, ix.1994 (PAB); Potters Bar, 1996 (JK); Buckingham Palace Garden, 12.viii.1999 (DJC); Hayes, larvae in pet food bar, xi.2001 (CC, det. MH from bred adults).

1480 *Homoeosoma nebulella* (D.& S.)

Chiswick and a sight record 'hence identification not vouched for' from Stamford Hill (Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1481 *Homoeosoma sinuella* (Fabr.)

Ruislip (Minnion, 1957); Buckingham Palace Garden, first recorded 23.vi.1976 (JDB); Old Fox Res., Ealing, 20.vii.1975 (JDB); Fulham, 1985 (Burge); The Paddock, Tottenham Hale, 27.vi.1996 (CWP); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 18.vi.–9.vii.1998 (TF); Chelsea Creek, 4.vi.1998 (CWP).

[1482 *Homoeosoma nimbella* (Dup.)

Hackney Marshes, Dalston '2 at fl. of *Silene inflata*, 22/6/01' and Highgate (Prout, 1902. *Trans. CLENHS* 1901: 54–68). This species has been confused, in particular, with *Phycitodes saxicola*. Goater (1986) discusses the confusion and lists very few positive records, none of which are from Middlesex. Emmet (1981) notes that all supposed Essex records have been proved to be of *H. saxicola* on proper investigation. On this basis, the two records mentioned above must be regarded as potentially incorrect until voucher specimens can be found and examined.]

1483 *Phycitodes binaevella* (Hb.)

Ruislip 'fairly common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Old Fox Res., Ealing, 20.vii.1975 (JDB); Arlington Square, 1980 (MG); Hampstead, regular (RAS); Fulham, 1986 (JB); Pinner, 1987 (WEM); Osterley Park, 1987 (JDB); Crouch End, in pitfall trap, 21.viii.1987 (JEDM det. CWP); Ruislip Lido, 2.vi.2000 (AMG).

1484 *Phycitodes saxicola* (Vaughan)

Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield 3.viii.1975, 30.vii.1976 (DJLA); Hampstead, most years (RAS); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998); Brompton Cemetery, 20.vii.1998 (TF).

1485 *Phycitodes maritima* (Tengst.)

Winchmore Hill, 31.viii.1971 and Enfield Highway, 19.vii.1972 (DJLA).

PTEROPHORIDAE**1488 *Agdistis bennetii* Curtis**

Hampstead, one at actinic light trap on balcony of flat on 6.viii.1997 (RAS) — a most unexpected, but correct, record.

1496 *Cnaemidophorus rhododactyla* (D. & S.)

Ruislip '1 record' (Minnion, 1957).

1497 *Amblyptilia acanthadactyla* (Hb.)

Chiswick (*Entomologist* 24: 94; *Ent. Rec.* 12: 26 and Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Poor's Field, Ruislip, 2 June 2000 (MH); Buckingham Palace Garden (Carter, 2001).

1501 *Platyptilia gonodactyla* (D. & S.)

Dalston, Stamford Hill, Craven Park, Hackney Marshes, Chiswick and Crouch End (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Winchmore Hill, 8.ix.1971 (DJLA); Hampstead, 1979, 1980, 1987, 2000 (RAS); Osterley Park, 1987 (JDB); Pinner, 1987 (WEM); Ruislip Lido, 2.vi.2000 (AMG).

1503 *Platyptilia ochrodactyla* (D. & S.)

Buckingham Palace Garden, first recorded 9.viii.1967 (JDB); Pinner, 1988 (WEM); Potters Bar, 1989 (JK).

1504 *Platyptilia pallidactyla* (Haw.)

Chiswick, 30.vii.1898 and 28.vii.1899, and Mill Hill (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Enfield Highway, 1972 (DJLA); Old Fox Res., Ealing, 20.vii.1975 (JDB); Hampstead, regular (RAS); Osterley Park, 1987 (JDB); Hollickwood Avenue, N12 — 14.vii.1990 (KGVs); Pinner, 1991 (WEM); The Paddock, Tottenham Hale, 1997 (CWP); Natural History Museum Wildlife Garden, South Kensington, 19.vii.2000 (MHo).

1508 *Stenoptilia bipunctidactyla* (Scop.)

Mill Hill (*Entom.* 24: 94 and repeated in Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip (Minnion, 1957); Buckingham Palace Garden, 11.ix.1975 (DJC).

1509 *Stenoptilia pterodactyla* (L.)

Hampstead, 18.vii.1987 (RAS).

1513 *Pterophorus pentadactyla* (L.)

'Apparently quite general in the suburbs' [of London] (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, 1961–63 (Bradley & Mere, 1964); Enfield area, 1970s (DJLA); Hampstead, 1984, 1987 (RAS); Osterley Park, 1987 (JDB); Alexandra Park, 20.vii.1990 (NB); Potters Bar, 1990 (JK); Denham Lock Wood, 1996 (CWP); Tower Hamlets Cemetery, 2001 (CWP); Scratch Wood, at m.v. light, 5.vii.2001 (CWP).

1523 *Oidaematophorus lithodactyla* (Tr.)

Bedford Park and Isleworth (*Entom.* 24: 94, repeated in Prout, 1902. *Trans. CLENHS* 1901: 54–68).

1524 *Emmelinea monodactyla* (L.)

Hale End, Chiswick and Crouch End (Prout, 1902. *Trans. CLENHS* 1901: 54–68); Ruislip 'common' (Minnion, 1957); Buckingham Palace Garden, first recorded 10.x.1975 (JDB); Hampstead — regular, but evidence of two broods as follows: 1984 — a gap from 11.v to 20.vi; 1985 — a gap from 21.v to 10.vii.; 1986 — a single mid-June record; 1987 — a gap from 10.v to 24.vi.; 1988 — a gap from 15.iv. to 23.vi.; 1989 — a gap from 9.v. to 16.vi.; 1990 — continuous records from 25.iv to 13.xi. with a total of 123 individuals recorded (RAS); Fulham, regular (JB); Camley Street Nature Park, 1986 (CWP); Pinner, regular, eg. 1987 (WEM); Osterley Park, 1987 (JDB); South Tottenham and Tottenham Hale, 1989 (NB); Bow, 29.vii.1989 (NB); Potters Bar, 1990, 1996 (JK); Ealing, 1990 (PAB); Denham Lock Wood, 1996 (CWP); West Hampstead, 1993 (DR); Natural History Museum Wildlife Garden, South Kensington, in the period 1995 to 1997 (Honey *et al.*, 1998) and 2000 (MHo); Brompton Cemetery, 6 and 27.ix.1997 (TF); Holland Park, 3.viii.1997 and 17.iii. & 6.vii.1998 (TF); Brent Reservoir banks, 1998 (AS); Highgate Wood, 1995 (MJH); The Paddock, Tottenham Hale, 1997 (CWP); Yiewsley, 1998 (MH).

Survey of Bookham Common

SIXTIETH YEAR

Progress Report for 2001

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General (Ian Menzies, Chairman, Bookham Common Survey)

A note from our first field meeting, held on Saturday 13 January: 'has become very flooded, being cold and frosty today: the Bookham Common stream has cut a subsidiary course across part of Central Plain' sets the scene for unsettled and unusually wet weather during the sixtieth year of the LNHS Bookham Survey. A note from our next meeting, on 10 February, states 'more waterlogged than ever' — even so thirteen members attended, indicating a considerable sustained enthusiasm for the Common. An unfortunate hiccough occurred on 18 March when the Common was closed as a precaution to prevent spread of foot-and-mouth disease which had broken out in the north of England. By 31 March restrictions were lifted for those who had projects, but it appears that visitors were discouraged for a much longer period, and management plans seriously disrupted throughout the summer, scrub clearance and grazing in particular becoming impossible (see Management section).

Nevertheless, after a short break our ornithologists, botanists and entomologists continued their studies. The effect of the high rainfall was of interest, vigorous growth of vegetation — the result of four consecutive years of higher rainfall following a long period of relative drought — being a conspicuous feature. Repeated finding of great crested newts *Triturus cristatus*, common newt *Triturus vulgaris*, common frog *Rana temporaria*, common toad *Bufo bufo* and the ash black slug *Limax cinereoniger* (an ancient woodland indicator species) under logs in several sites (Arboretum and vicinity of Upper Hollows Pond and Merritt's Cottage) on 31 March (MB, DD, JG-Z, JH, IM) and several other occasions during the year, was probably a feature of the unusually waterlogged conditions.

The Saturdays 9 June and 14 July were chosen to mark the sixtieth anniversary of the LNHS Bookham Common Survey. On the first occasion Dr Alan Prowse led a very interesting walk focussing upon the survival of birds on the Common. The second occasion was marked by lightning and a very loud clap of thunder, accompanied by champagne, in the shelter of the hut during the lunch break! About sixteen members attended on both occasions.

Ken Page and Bryan Radcliffe led the 'Botany of Bookham Common' walk on 30 June. This was very well attended, the group enjoying expert descriptions of the botany on a fine summer day, and a whole range of natural history besides.

Neil Anderson led the 'Dragonflies and other insects' meeting on 21 July during which several notable species were observed, including the woodland grasshopper *Omocestus rufipes*, apparently a new species for north Surrey. Donald Prance has contributed (8.vi.2001) a further *Red Data Book 1* beetle, *Teredus cylindricus*, new to Bookham Common and Surrey.

Management tasks on the Bookham Commons

(Ian Swinney, Warden, The National Trust)

During 2001 the weather patterns have resulted in cold periods with heavy rain during all seasons, conditions reaching saturation point. This could be regarded as beneficial for what is, after all, mainly a wetland site; ponds and marshy areas maintaining their water levels nicely. The sticky London Clay soon made the main woodland paths difficult so that walkers made parallel tracks through the trees, increasing the areas disturbed.

Excessive trampling abruptly ceased with the closure of the property to all persons, including the Wardens, due to the outbreak of foot-and-mouth disease during March. Justification for the closure became apparent when a dog walker challenged as he returned from the middle of the Common protested, 'Oh, it's all right, the foot-and-mouth was at least ten miles away from the farm where we were staying in Wiltshire'! The closure was, however, a welcome break for the persecuted wildlife: ducks were seen waddling down the middle of Commons Road and, on another day, five roe deer browsing peacefully without a dog in sight. Clearly, although visitors and especially their dogs do have a significant effect on the appearance and behaviour of wild birds and mammals, without public support for the Common as an amenity area it may well have been allocated for agriculture, housing, industry or road construction many years ago!

The main impact of the foot-and-mouth episode was on the grassland areas of Central, Bayfield and IoW Plains which could not be grazed during the summer of 2001, allowing a build-up of lush vegetation with increase in the bulk of the litter layer, encouraging yet more competitive, rank vegetation and permitting scrub a full season's growth. On the other hand, it was interesting to see the area in unrestricted flower and we may well find a use for this knowledge in future years once the balance between ancient, species-rich, unimproved grassland and invasive scrub communities is under more control.

As the birds were still nesting by the time we were permitted to continue operations, emphasis was placed on property presentation rather than scrub management. Many visitors who do not mind donning protective wear to push through the mud, brambles and blackthorn of the natural countryside, are not impressed if entrances to the Common, especially the car parks, are unkempt. This gives the impression that no one cares about the place and, in turn can encourage fly-tipping, appearance of abandoned and sometimes burnt-out cars, and acts of vandalism. It is worth considering the extent to which removal of rubbish and repair of damage reduces time and money available for habitat maintenance and also demoralizes staff.

Important changes in staff organization are taking place within The National Trust. With alteration of regional boundaries, major reorganization of staff and offices are necessary with, it is hoped, a better, more efficient use of limited resources. The wardening of the Commons has now changed in that I report to the Head Warden, North Downs West and, as part of a team, now help to look after over 3,000 acres of countryside including areas of chalk grassland on the scarp of the North Downs between Dorking and Guildford, former wood pasture (similar to Bookham Commons) at Ranmore Common, interesting beechwoods on the Polesdon Lacey Estate with valuable parkland at Hatchlands as well as Bookham Commons! Many of these changes have been brought about by the need to pool resources including tools and machinery, and for greater security (after some theft of equipment), also the need for more stringent application of health and safety at work.

We thank London Natural History Society members who have given their time to support the Bookham Commons Survey which after a period of sixty years continues to generate a great deal of interest relating to nature conservation.

Vegetation — an elegant grass (Ken Page)

Twelve plants new to the survey were discovered last year — three native, three doubtfully native, three hybrids with one parent native — the remainder alien. With the exception of the hybrids most of the plants are widespread in Surrey, so it is surprising that none has been recorded in the past fifty years of the survey. As recorders we must assume recent arrival!

Of the native plants the most interesting is *Milium effusum* wood millet. This elegant grass with its pendulous inflorescences is frequently a constituent of similar woods in the area, and in the past we have been confounded by its absence which is as difficult to explain as is its sudden appearance. The main clump is on the edge of Hill House Path in Division E. Later a single plant was found in the adjacent Division D.

Eupatorium cannabinum hemp agrimony was found in a recently cleared part of Division O. The plant is mostly an inhabitant of damp places (as here). As this is cleared woodland perhaps the seed has lain dormant since the time before scrub and tree encroachment.

The third native, *Epilobium roseum* pale willowherb, is somewhat rare and thought to be decreasing. A single plant was found in Division J. Apart from its pinkish-white flowers it is largely identifiable by the conspicuous long leaf stalks.

The three doubtfully native species are members of the daisy family (Compositae); all were found on recently cleared wood and scrubland in Division O. *Crepis vesicaria* beaked hawksbeard produces its yellow daisy flowers in early summer. *Lactuca virosa* great lettuce is a relative of garden lettuce and appears to have increased in numbers since the storms of a decade ago. Impressive in a coarse way it has two-metres-tall stems and large prickly, undulate leaves, often tinged purple or maroon. *Picris echioides* bristly oxtongue flourishes in the heavy clay soil. Its leaves are covered in stiff bristles which are hooked at their tips, the prickliness reminiscent of teasles.

The three hybrids with combined native and alien parentage consist of two garden discards and a spontaneous crossing *in situ*. *Senecio* × *albescens* – *S. cineraria* silver ragwort from the Mediterranean crossed with the native *S. jacobaea* common ragwort. The Mediterranean plant is often grown in gardens. *Mentha* × *villosa* var. *alopecuroides* apple mint is considered to be a complex mixture of native and alien species. It is a very vigorous hybrid up to a metre tall. Both grow in Division O. *Epilobium parvifolium* × *E. ciliatum* is a hybrid between the native hoary willowherb and American willowherb. It was found in Division B.

The aliens include *Rhododendron ponticum* which may have been missed in the past. It grows on the edge of a track in Division J as does the hybrid snowberry *Symphoricarpos* × *chenaultii* (*S. microphyllus* × *S. orbiculatus*). This snowberry is spreading rapidly. *Buddleja davidii* butterfly-bush is self-sown in the recently cleared ground in Division O. It may be wise to prevent its spread! *Heracleum mantegazzianum* giant hogweed first recorded in 1994 is now known in five divisions. Perhaps we should be more ruthless with these invasive aliens as has been suggested with the *Buddleja*.

Birds (Alan D. Prowse)

The year was generally wet, particularly in the breeding season, but there were a number of highlights. A grey wagtail was an unusual visitor on 13 January. On 11 August R.G. Booth, while entomologizing, heard the distinctive calls of crossbills, with which he is very familiar. He looked up, and saw three birds flying over. He was unaware that crossbills had arrived in the country in the previous few weeks. I have discussed the record in detail with him. Despite our lack of conifers, there is a previous record for the Common. On the same day RGB had the only kingfisher of the year on one of the ponds.

Pride of place, however, goes to two willow tits together below Hill House Wood on 22 April. Well seen by Clive Poole, he was able to see each diagnostic feature on each bird. I have seen his pages of notes and sketches and discussed the record with him. He is a member of the BTO and a BBS recorder. The 'chay' call was not uttered, the birds using the 'zi zi zi' call used by pairs when the off-nest female is feeding (but also at other times). The species, a former regular resident on the Common, is now seldom recorded in Surrey, though present regularly in Sussex. Unfortunately, I did not learn of the record until 7 May, and was out of the country for two weeks thereafter, so the distinct possibility of a pair nesting was not explored. There are no records since.

Spring migration. A wood warbler passed through on 28 April (CP) and a grasshopper warbler on 29 April (CP). A sedge warbler sang on Central Plain on 4 June (ADP). First dates for regular visitors were blackcap 2 April; willow warbler 6 April; whitethroat 9 April; nightingale 11 April; cuckoo 23 April; lesser whitethroat 26 April; garden warbler 26 April; turtle dove 30 April.

Breeding season. Where appropriate in this section the 2000 figures are given in parentheses.

The ponds were again disappointing, but the public throw sticks for their large dogs in the ponds even when young birds are obvious. Moorhens were on all ponds on the Common and along the main streams. Coots nested on ponds 2, 3, 4 and 5. Ron Kettle recorded a pair of tufted ducks on 15 May on pond 5. One brood of mallard was seen.

The heronry had 23 (22) successful nests in five groups (RS). Of interest were freshwater mussel shells on the ground under one nest.

Although the first nightingale appeared on 11 April, build-up was slow, with only five by the end of April. Eight (7) pairs bred this year. A five-year study of the habitat of the nightingale and its conservation at Bookham Common has recently been published (Prowse 2002).

A pair of kestrels was present at various times through the season, and a second male on 14 June. As usual, a pair of sparrowhawks was present in the Eastern Wood area.

There have been no breeding season records for several years for the woodcock, but one was forthcoming this year with a mid-season bird on one occasion at dusk.

Turtle doves were uncommon. A male was present at the Isle of Wight using a dead branch for singing, staying into June, and minimal contact with the species on Western Plain — usually its main area — was made early in the season. This species is increasingly uncommon in this country, and in Surrey, and our Bookham Common population is probably too small to sustain itself.

In late season, barn swallows were still present in June, so must still be nesting in the area. No cuckoos were heard or seen after 4 June.

As recorded years ago, finches are not usually present in great variety at Bookham. Goldfinches usually disappear by mid April but stayed to breed in 2001. The male sang regularly from the warden's roof. Linnets, which are irregular breeders, were present from 6 April into June with two pairs on Bayfield; greenfinches were present on the plains for the first time for some years, and performing their beautiful 'butterfly' courtship flights in three territories; six bullfinch territories (7) were known on the plains with others in the woodland. Chaffinches had twenty-four recorded territories on the plains. The reed bunting is an intermittent breeder. After an absence of three years, one pair was present and a second male was singing on 29 April. There were no records this year for yellowhammer. Both buntings were regular breeders in the earlier decades of the survey, but both have suffered marked national declines.

It was a good year for warblers on the plains. Lesser whitethroats occur each year on passage but, although staying for some days, have not stayed to nest for some years. This year four pairs had territories, on Bayfield and Isle of Wight

plains, and two on Central Plain. Table 1 shows the numbers of each warbler species with the 2000 figures for comparison. Apart from the lesser whitethroats other *Sylvia* warblers did well with high numbers of whitethroats, blackcaps, and garden warblers. Willow warblers were still at a low ebb with 14 pairs (15), but chiffchaffs increased to 19 pairs (11).

TABLE 1. Warblers on the plains of Bookham Common in 2001 compared with 2000.

Key: WH = whitethroat; LW = lesser whitethroat; GW = garden warbler; BC = blackcap; WW = willow warbler; CC = chiffchaff.

	WH	LW	GW	BC	WW	CC	Total
2000	30	0	23	25	15	11	104
2001	35	4	29	28	14	19	129



FIGURE 1. Territories of garden warbler and blackcap on the plains of Bookham Common 2001. Adjacent territories have been included in this map but not on the plains totals in the text.

The rise in garden warbler numbers in the past few years has been noteworthy, from fourteen territories in 1997 to twenty-nine in 2001, and this increase is not reflected in national or south-east England figures. A concentration of seven garden warbler territories in a narrow strip of Central Plain between Bookham Station and the Isle of Wight was remarkable. Blackcap

numbers have been increasing nationally, but the rise on Bookham Common plains from 12 in 1997 to the present 28 pairs is impressive. On the thirty-nine hectares of the plains, the 2001 figures give a density of 74 pairs/sq km. for the garden warbler and 72/sq km for the blackcap. The high populations of these insectivorous species are a tribute to the conservation being practised by The National Trust through our warden Ian Swinney. Figure 1 shows the distribution of garden warbler and blackcap territories on the plains in 2001. In the southern parts of the plains, where more clearance has been done, the blackcaps are typically in the more wooded periphery, but there is greater mixture of the two species in the denser northern area.

In the autumn, there was a relative failure of beech and oak fruiting nationally, so a winter of food shortage for many species was in prospect. Redwings and fieldfares had cleared the various fruits on the plains by the end of the year and moved elsewhere. The Constant Effort Ringing Scheme of the BTO recorded normal levels of adults of most species during the year, but a severe drop, of up to 40 per cent, in the juveniles after the disaster of the wet breeding season. With this double threat to populations, the results for 2002 will be of more than usual interest.

Acknowledgements

My thanks are due to those who submitted records during the year: R.G. Booth, M. Hyslop, R. Kettle, I. Menzies, C. Pettigrew, C. Poole, R. Suckling and I. Swinney.

Reference

PROWSE, A. D. 2002. The nightingale in scrub at Bookham Common; its habitat and conservation. *Surrey Bird Rep.* 1999: 116–130.

Dragonflies and other insects Field Day, 21 July 2001 (Neil Anderson)

Following a wet night we were fortunate to have a mix of sunshine and cloud with a maximum temperature of 20°C. About a dozen members of a wide range of interests attended.

Those of us walking from the station observed a couple of speckled bush-crickets *Leptophyes punctatissima* basking on low vegetation. It is difficult to hear the stridulation of this species without the aid of a bat-detector. Frequent along the wooded paths was the distinctive hoverfly *Volucella pellucens*, with its white-banded abdomen, hovering above our heads. Also along the ride to the LNHS hut we encountered our first white admirals *Limenitis camilla*, and silver-washed fritillaries *Argynnis paphia*. The latter species has achieved a spectacular comeback here at Bookham over the last few years, with over thirty seen during the study day — welcome news given the general parlous status of the woodland fritillaries in Britain.

The highlights of the day occurred in the garden in front of our LNHS hut at Merritt's Cottage. Ian Menzies observed that many top leaves of a twelve-foot willow had been devoured and on further investigation two fully grown larvae of the puss moth *Cerura vinula* were discovered. These large caterpillars are very characteristic and, despite their ability to squirt acid, proved popular with the party! Over-wintering as pupae in a tough cocoon attached to the host tree or nearby wooden post they should emerge as adults next May.

A second highlight was a purple emperor *Apatura iris*, which glided over us a couple of times while we ate our lunch — one of two seen during the course of the day.

The final highlight outside the hut was the discovery of a grasshopper, evidently an *Omocestus*, conspicuously perched on my rucksack which was lying on the grass. On closer examination our initial identification of common green

grasshopper *O. viridulus* was amended, in view of red coloration on the abdomen and white-tipped palps, to that of woodland grasshopper *O. rufipes*. At a later date Ian returned and detected further specimens, confirming the existence of two small colonies. This species is new to Bookham and, furthermore, does not appear to have been recorded from north Surrey previously (Baldock 1999). Many orthopterans, as with other thermophilic insects, have been undergoing range expansions in recent times, presumably correlated with global warming.

After lunch we examined the chain of five ponds starting with the Isle of Wight Pond. Here we observed a male emperor dragonfly *Anax imperator* patrolling the lake. Four male black-tailed skimmers *Orthetrum cancellatum* were seen involved in territorial skirmishes over the water and basking on the bare mud. Common blue damselflies *Enallagma cyathigerum* were plentiful.

We were introduced to the brown hawker *Aeshna grandis*, and a male ruddy darter *Sympetrum sanguineum* flying over Lower Eastern Pond. The latter species favours this pond which has an abundance of emergent *Typha latifolia*.

Ian examined a hazel *Corylus avellana* bush and pointed out a leaf neatly rolled up, which contained within the pupa of the weevil *Apoderus coryli*.

Ending the afternoon we crossed Bayfield Plain which was very colourful with greater birdsfoot trefoil *Lotus pedunculatus*, knapweed *Centaurea nigra*, fleabane *Pulicaria dysenterica*, and others. Here we observed the day-flying moths six-spot *Zygaena filipendulae* and narrow-bordered five-spot *Zygaena lonicerae* burnets as well as their recently vacated pupal cases. At Bayfield Pond we saw southern hawker *Aeshna cyanea* and several azure damselflies *Coenagrion puella*. A further southern hawker was encountered feeding along the track.

In summary, an enjoyable day with some truly exciting moments for us all. Also my thanks to Ian with his expertise on Coleoptera and some other insects which I have less experience of.

Reference

BALDOCK, D. W. 1999. *Grasshoppers and crickets of Surrey*. Surrey Wildlife Trust.

Insects (Ian Menzies and Maxwell Barclay)

During April the usual hibernating butterflies appeared, with the notable absence of the small tortoiseshell which has become much reduced in numbers of late, and species overwintering as pupae such as the holly blue, speckled wood, orange-tip, green-veined white, small and large whites were all in evidence during late April and May. On 16 July, a fine sunny day, a count lasting one and a half hours in the vicinity of Hollows, Glade and Banks Paths revealed 34 silver-washed fritillaries, 17 white admirals, 5 commas, 3 red admirals and 2 purple emperors. Ringlets, meadow browns and gatekeepers were plentiful, and purple hairstreaks unusually abundant flying high around the upper oak branches, but also at lower levels. On 23 July a single marbled white was seen in the grassy area at the front of Merritt's Cottage. Large numbers of silver-washed fritillaries were still about on 26 July, and a single purple emperor was seen at the south end of Glade Path. It appeared that while the silver-washed fritillary numbers were unaffected by the unusually wet winter and spring, the white admiral had become somewhat reduced in numbers.

Larvae of the chocolate tip and swallow prominent moths *Clostera curtula* and *Pheosia tremula* were beaten from aspen, and two fully grown larvae of the iron prominent *Notodonta dromedarius* from birch, on 21 September.

Following up the discovery of a single woodland grasshopper *Omocestus rufipes* at Merritt's Cottage on 21.vii.2001 (see 'Dragonflies and other insects' field meeting report, above), two small colonies of this species were found on

23.vii.2001, the first in the grassy clearing at the front of Merritt's Cottage and the second near the intersection of Banks and IoW Paths. This species was difficult to locate as the stridulation, unlike that of *O. viridulus*, lasts no longer than ten seconds and may only be repeated after a pause of several minutes while the insect, inconspicuous against a background of turf, dead twigs and dry leaves, is often on the move. On 26.vii.2001 Seth Gibson found a single rufous grasshopper *Gomphocerippus rufus* on IoW Plain. A colony of this species, normally confined to chalk or limestone hillsides, was known to exist on Bookham Common for several years earlier this century (Lucas 1920), but the species has not been noted here in recent years. On the same day a male *O. rufipes* was successfully photographed by Banks Path.

During the course of the Bush-cricket Field Day, held on 11.viii.2001, the following species were demonstrated. Speckled bush-cricket *Leptophyes punctatissima*, present in large numbers on low vegetation; long-winged conehead *Conocephalus discolor*, plentiful in most grassy areas; Roesel's bush-cricket *Metrioptera roeselii*, plentiful on Bayfield and IoW Plains; dark bush-cricket *Pholidoptera griseoaptera*, stridulation identified amongst brambles at woodland margins in several sites; meadow grasshopper *Chorthippus parallelus* abundant in most grassy areas, field grasshopper *Chorthippus brunneus* colonies in dry grassy areas on IoW Plain; common green grasshopper *Omocestus viridulus* in small numbers on IoW Plain, along Banks Path and in grassy areas by Merritt's Cottage; woodland grasshopper *Omocestus rufipes* heard but not seen near Merritt's Cottage; common and slender ground-hoppers *Tetrix undulata* and *T. subulata*, both species seen in a recently cleared area by Central Ditch. The oak bush-cricket *Meconema thalassinum* could not be found on this occasion, although several nymphs had been beaten from oak earlier in the year. Once again there was no sign of the short-winged conehead *Conocephalus dorsalis*. Several bugs, including the blue bug *Zicrona caerulea*, and box bug *Gonocerus acuteangulus* were seen, also the pentatomid *Picromerus bidens* was found busy sucking a larva of the sawfly *Abia sericea* on a plant of devils-bit scabious on Eastern Plain.

Unusually large numbers of wasps and flies were observed visiting the flowers of angelica during August, especially on the Western Plain. On 8, 10 and 13.viii.2001 specimens of the the hornet hoverfly *Volucella zonaria* were seen in company with other wasp-mimics including *Volucella inanis*, *Sericomysia silentis*, *Myathropa florea* and *Helophilus pendulus*, also a single male of the extraordinary tachinid fly *Alophora hemiptera* which simulates a shield-bug.

During May 2001 beetles visiting hawthorn blossom were present in disappointingly low numbers; longicorns such as *Grammoptera ruficornis*, *Alosterna tabacicolor*, *Anaglyptus mysticus*, *Clytus arietus* and *Rhagium mordax*, all of which were regularly encountered in quite large numbers by beating hawthorn blossom during May the 1980s, were encountered in much reduced numbers or not at all. Coccinellids, and flea beetles such as *Aphthona euphorbiae* and *Longitarsus parvulus*, obtainable in large numbers during autumn and winter months in the mid 1990s by beating evergreens such as ivy and holly in which they shelter during hibernation, have also become scarce in recent years. There is no obvious explanation for this change unless it be related to the increased rainfall. Despite this our coleopterists, especially Dr Roger Booth, have managed to add a further twenty-one species to the Bookham list (Table 1), and also rediscover nineteen species which have not been seen on the Common since before 1970 (Table 2).

Of particular interest has been the discovery by Donald Prance of a single specimen of *Teredus cylindricus* (Olivier) on 8.vi.2001 from a dead oak bored by anobiid beetles. Bookham Common is not a typical habitat for this *Red Data Book* 1 species, previously known only from the Windsor Forest area of Berkshire, and Sherwood Forest for which there are old records. Hyman (1992) suggests it is probably predatory on other beetles, and associates it with old oaks infested

with wood-boring beetles such as anobiids (*Xestobium*, *Anobium*, *Ptilinus*) and scolytids (presumably *Dryocoetinus*), all of which are recorded from Bookham Common. *Teredus* has also been associated with the ant *Lasius brunneus* (Formicidae), once a Windsor speciality, which has recently spread across SE England, and is present at Bookham.

References

- HYMAN, P.S. (revised PARSONS, M.S.) 1992. *A review of the scarce and threatened Coleoptera of Great Britain*. Part 1. UK Nature Conservation 3. Peterborough: JNCC.
LUCAS, W.J. 1920. *A monograph of the British Orthoptera*. The Ray Society, London.

Contributors. MB Maxwell Barclay, RB Roger Booth, DD Dan Duran, JG-Z Jesus Gomez-Zurita, JH James Hogan, IM Ian Menzies, DP Donald Prance.

TABLE 1. Beetle species found during 2001 not previously recorded from Bookham Common.

Species	Date and area	Recorder
Ptiliidae		
<i>Ptilium fuscum</i> (Erichson)	13.x.2001 searching near Merritt's Cottage	RB
<i>Acrotrichis sitkaensis</i> (Mots)	9.vi.2001	RB
Scydmaenidae		
<i>Scydmaenus tarsatus</i> Muell. & Kunze	17.x.2001 in manure heaps near Bayfield Plain	RB
Staphylinidae		
<i>Carpelimus pusillus</i> (Grav.)	14.vii.2001	RB
<i>Carpelimus similis</i> (Smet.)	14.vii.2001	RB Notable B
<i>Leptacinus pusillus</i> (Stephens)	17.x.2001 in manure heaps near Bayfield Plain	RB
<i>Gabrius velox</i> Sharp	11.viii.2001	RB Notable B
<i>Cypha hansenii</i> Palm	11.viii.2001	RB
<i>Homalota plana</i> (Gyllenhal)	9.vi.2001	RB
<i>Amischa forcipata</i> Muls. & Rey	11.viii.2001	RB
<i>Atheta hygrobica</i> (Thomson, C.G.)	14.vii.2001	RB Notable B
<i>Atheta ischnocera</i> Thomson	17.x.2001 in manure heaps near Bayfield Plain	RB
<i>Atheta luteipes</i> (Erichson)	14.vii.2001	RB
<i>Atheta melanaria</i> (Mannerheim)	13.x.2001 searching near Merritt's Cottage	RB
<i>Atheta setigera</i> (Sharp)	13.x.2001 searching near Merritt's Cottage	RB
<i>Atheta volans</i> (Scriba)	14.vii.2001	RB
Coccinellidae		
<i>Chilocorus bipustulatus</i> (Linn.)	8.viii.2001 beaten from old hawthorn by Merritt's Cottage (usually associated with heather!)	MB
Cisidae		
<i>Cis nitidus</i> (Fab.)	9.xii.2001 in <i>Daedelopsis conflagrosa</i> fungus, Bayfield Plain.	MB
Bothrideridae		
<i>Teredus cylindricus</i> (Olivier)	8.vi.2001 on woodworm-infested oak	DP RD1, first Surrey record
Mordellidae		
<i>Mordellistena variegata</i> (Gyllenhal)	11.viii.2001	RB
Curculionidae		
<i>Curculio rubidus</i> (Gyllenhal)	21.ix.2001 by beating birch, Eastern Plain	IM

TABLE 2. Beetle species recorded during 2001 for the first time since before 1970.

Species	Date and area	Recorder
Carabidae		
<i>Bembidion guttula</i> (Fab.)	14.vii.2001 searching near Merritt's Cottage	RB
<i>Badister bipustulatus</i> (Fab.)	31.iii.2001	MB, DD, JG-Z, JH, IM
Hydrophilidae		
<i>Cercyon lateralis</i> (Marsham)	13.x.2001 searching near Merritt's Cottage	RB
Ptiliidae		
<i>Acrotrichis grandicollis</i> (Mannerheim)	13.x.2001 searching near Merritt's Cottage	RB
<i>Acrotrichis cognata</i> (Matthews)	13.x.2001 searching near Merritt's Cottage	RB Naturalised (a North American species.)
Staphylinidae		
<i>Encephalus complicans</i> Stephens	8.viii.2001	MB
<i>Atheta aterrima</i> (Gravenhorst)	17.x.2001 in manure heaps, near Bayfield Plain	RB
<i>Atheta cinnamoptera</i> (Thomson, C.G.)	13.x.2001 searching near Merritt's Cottage	RB
<i>Atheta intermedia</i> (Thomson, C.G.)	13.x.2001 searching near Merritt's Cottage	RB
<i>Atheta laticollis</i> (Stephens)	9.vi.2001	RB
Scarabaeidae		
<i>Oxyomus sylvestris</i> (Scopoli)	17.x.2001 in manure heaps, near Bayfield Plain	RB
Scirtidae		
<i>Cyphon coarctatus</i> Paykull	9.vi.2001	RB
<i>Cyphon ochraceus</i> Stephens	9.vi.2001	RB
Heteroceridae		
<i>Heterocerus marginatus</i> (Fab.)	14.vii.2001	RB
Nitidulidae		
<i>Meligethes carinulatus</i> Forster	11.viii.2001	RB
<i>Meligethes flavimanus</i> Stephens	9.vi.2001	RB
Coccinellidae		
<i>Scymnus haemorrhoidalis</i> Herbst	8.viii.2001 vacuum sampler, Bayfield Plain	MB
Anthicidae		
<i>Anthicus floralis</i> (Linn.)	11.viii.2001	RB
Curculionidae		
<i>Tychius pusillus</i> Germar	9.vi.2001	RB Notable B

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Changes in aquatic macroinvertebrate communities in Bookham Common Hollows Valley Ponds from 1993 to 1998

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Abstract

Aquatic macroinvertebrate communities in Bookham Common Hollows Valley Ponds were sampled using National Pond Survey techniques from 1993 to 1998. Drying of the ponds due to drought in the summer of 1995 resulted in low-diversity and high-abundance communities characteristic of a perturbed habitat. Analysis of community structure in Isle of Wight and Western Hollow Ponds suggests that total or partial desiccation initiated recolonization processes resulting in modification of the macroinvertebrate communities. It is suggested that these changes occurred because they are not true temporary ponds and their communities are not intrinsically adapted to persist through this type of environmental perturbation.

Introduction

The importance of ponds as sources of biodiversity in Britain has been amply demonstrated (Nicolet 2001). In the UK, 50 per cent of all freshwater aquatic invertebrate species are likely to be found in ponds (Drake 1995). The nature of ponds as small, inherently unstable habitats renders their biota vulnerable to environmental perturbations such as drought, flood and anthropogenic influences. Bearing in mind the contribution of ponds to biodiversity at the local and national scale, there is a need to examine their response to such perturbations. This study examines changes in the composition of macroinvertebrate communities of five ponds at Bookham Common (SSSI) from 1993 to 1998 encompassing a period of drought in 1995.

Bookham Common Hollows Valley contains a chain of five ponds bordered with woodland (Figure 1). They are based on London Clay and were formed by damming Greendell Ditch and its tributaries in the valley at five points. They consist of Isle of Wight (TQ126562), Western Hollow (TQ127563), Eastern Hollow (TQ128563), Lower Eastern (TQ130563) and Upper Eastern (TQ132563). A consequence of damming Greendell Ditch to form ponds is that the water flows westward from Upper Eastern Pond through to Isle of Wight Pond in a linear sequence. According to Jones (1960) the five ponds have occupied the valley since at least 1887. The ponds and their biota have been studied and documented for many years by members of the London Natural History Society. Records indicate that the ponds have differed in their successional states over time. Two ceased to be recognizable as ponds for some

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years before being re-excavated. All have been subject to desiccation on several occasions as a consequence of drought, silting, allied successional processes or management, i.e. drainage (Table 1). Most recently, drought in 1995 resulted in all five ponds drying either completely or partially (Figures 3–5). Two ponds dried up completely forming shallow basins of wet (Upper Eastern) or dry (Lower Eastern) mud. Three others dried partially, leaving expanses of dry and wet mud exposed. Such dry episodes constitute a major ordering influence on the macroinvertebrate fauna of ponds (Jeffries 1994) and present useful opportunities to study pond colonization and successional changes over time.

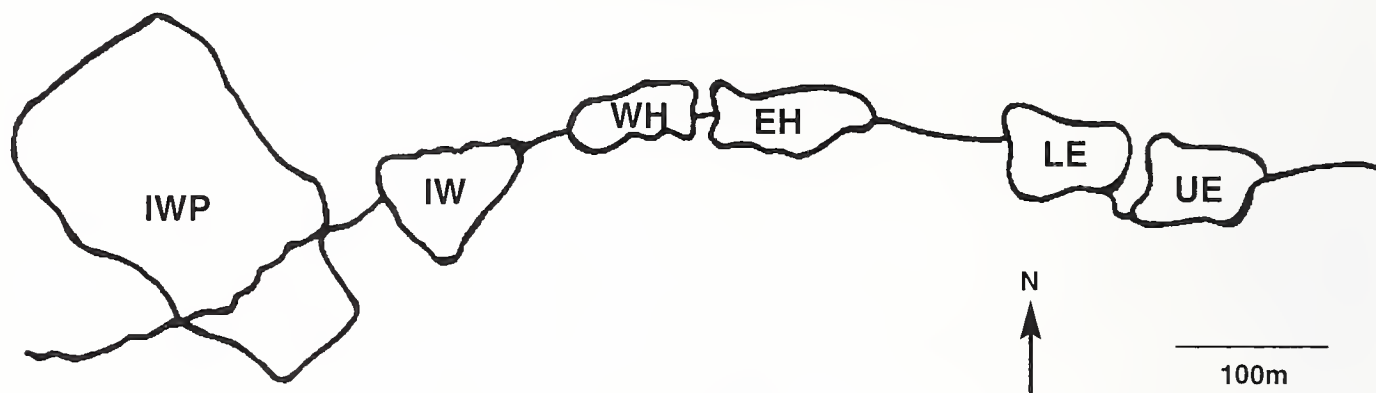


FIGURE 1. Bookham Common Hollows Valley Ponds, modified from Bookham Common Survey (*The London Naturalist* 44: 114).

Key: IWP Isle of Wight Plain; IW Isle of Wight Pond; WH Western Hollow Pond; EH Eastern Hollow Pond; LE Lower Eastern Pond; UE Upper Eastern Pond.

Methods

Aquatic macroinvertebrate samples

Isle of Wight Pond and Western Hollow Pond (Figure 2) were sampled on 22 June 1993 during a preliminary study (Kett and Kirk 1994). All ponds were sampled on 13 September 1995, 11 October 1997, 1 December 1997 and 2 May 1998. Ponds were examined prior to macroinvertebrate sampling to establish microhabitats and features present. Each pond was then sampled with an FBA standard 1.0 mm mesh pond net following National Pond Survey techniques (Biggs et al. 1989), i.e. a three-minute sample was equally divided between the number of microhabitats present. Vertebrates in samples were released before macroinvertebrates were fixed in 4.0 per cent formalin. Macroinvertebrate identification was carried out using: Gledhill et al. (1976) Malacostraca; Macan (1977) Gastropoda; Elliot and Mann (1979) Hirudinea; Miller (1987) Odonata; Elliot et al. (1988) Ephemeroptera; Friday (1988) Coleoptera; Savage (1989) Hemiptera; and Wallace et al. (1990) Trichoptera. Taxa were identified to species where possible. Macroinvertebrate data were tested for between pond and year similarity of taxa present using Jaccard's Coefficient (Stiling 1999). Pond macroinvertebrate diversity indices were calculated using Simpson's 'D' Index (Huston 1994).

Mud samples

Mud cores were taken on 13 September 1995 during a period of drought to sample invertebrates living in the mud and to determine percentage organic matter. Wet and dry mud habitats were sampled at points approximately 50 per cent across each mud habitat zone. Each habitat was sampled to a depth of 150 mm with a 40-mm diameter sediment corer. Six core samples were taken in each mud habitat and sealed in polythene bags. Three cores from each wet mud habitat in each pond were analysed for invertebrates immediately. Cores were soaked in distilled water for thirty minutes and were washed through a sieve series of 2.0, 1.0 and 0.5 mm mesh. Material retained by each sieve was

examined for invertebrate taxa. The three remaining cores from wet mud were oven dried at 80°C for twenty-four hours and analysed for percentage organic matter. Dry mud cores were soaked in distilled water for an additional two weeks to allow any resting stages to develop. After this time samples were fixed in 10 per cent formalin and were analysed for macroinvertebrates as stated for wet mud cores. Dry cores were not analysed for percentage organic matter because of possible prior oxidation of organic material.

Results

In total 144 macroinvertebrate taxa were identified from Bookham Common Hollows Valley Ponds over the sampling period from 1993 to 1998. Four taxonomic groups predominated: Coleoptera (33 species), Hemiptera (21 species), Mollusca (18 species) and Odonata (11 species) comprising more than half the identified taxa (Table 2). Simpson's indices show a high level of macroinvertebrate diversity within the five ponds (0.71 – 0.83). Jaccard's Coefficients of Similarity (Table 3) show no major identifiable trends other than broad within-year/between-pond similarity. Coefficients show low levels of similarity between and within ponds in different years, except Western Hollow 1993 which shows similarity to itself, Eastern Hollow and Lower Eastern Ponds in 1997.

Eighteen invertebrate taxa were present in the pond water samples during the summer of 1995. Western Hollow had the highest taxon richness (13 taxa compared to 50 taxa in 1993). Eastern Hollow contained 12 taxa and Isle of Wight contained 11 taxa (compared to 44 taxa in 1993). Eight taxa were found in Upper Eastern Pond whilst Lower Eastern Pond contained no taxa as it was completely dry. In addition to macroinvertebrates, planktonic crustaceans, *Daphnia* spp., were observed in pools of standing water remaining in the three semi-dry ponds (Eastern Hollow, Western Hollow and Isle of Wight). Chironomid larvae and oligochaetes also formed dense populations in these pools. Taxon richness within wet mud was lower than in corresponding water samples and increased with percentage organic matter. Analysis of mud samples showed that percentage organic matter increased throughout the pond chain, being highest in Upper Eastern pond and lowest in Isle of Wight Pond (Table 4).

Ninety-two macroinvertebrate taxa were found in the ponds in October 1997. Lower Eastern had the highest taxon richness of 57 taxa, Eastern Hollow contained 48 taxa, Western Hollow contained 39 taxa, Isle of Wight contained 36 taxa and Upper Eastern had 21 taxa. Additional sampling in December 1997 and May 1998 (Tronchoni 1999) revealed the presence of 12 additional taxa including 10 additional species (Table 2).

Discussion

The drought in summer 1995 had obvious effects on aquatic macroinvertebrate richness and abundance within Bookham Common Hollows Valley Ponds. Few taxa present in 1993 remained during the drought, either within remaining standing water or within wet and dry mud. Those taxa that were present were often abundant, notably oligochaetes, chironomid larvae and planktonic cladocerans. Such low-diversity and high-abundance communities are characteristic of high-stress or perturbed habitats.

Taxa remaining in standing water were notable for several characteristics. Most were flightless with the exception of *Hygrotus inaequalis*, *Sigara lateralis* and *Micronecta scholtzi*. Organisms tolerant of turbid, shallow water and low oxygen concentrations included ceratopogonid larvae, chironomid larvae and oligochaetes. The two predatory leeches present, *Erpobdella octoculata* and *Helobdella stagnalis*, are considered as 'indicator species' of organically-enriched waters (Elliott and Mann 1979) and, like *Sialis lutaria* larvae, are tolerant of a wide range of water conditions (Elliot 1977). All three taxa prey extensively on chironomid larvae and oligochaetes. *S. lateralis* may have colonized Isle of Wight



FIGURE 2. Macroinvertebrates in Western Hollow Pond (pictured) and Isle of Wight Pond were studied in 1993 by Kett and Kirk (1994).



FIGURE 3. Western Hollow Pond in semi-dry condition in September 1995.



FIGURE 4. Isle of Wight Pond in semi-dry condition in September 1995.



FIGURE 5. Lower Eastern Pond dried up completely in September 1995.

Pond during the drought. In urban ponds it is regarded as a 'pioneer' species, characteristic of new or perturbed pond environments (Langley et al. unpublished data). Savage (1989) also noted this species as tolerant of degraded habitats, whilst Sládaček and Sládečková (1994) list it as indicative of high levels of organic saprobity. Where standing water was absent, but mud remained wet, ponds with a greater concentration of organic matter supported a higher number of taxa. Organic material, largely composed of decomposing vegetable debris, may have offered larger, waterlogged interstitial refugia than those found in sediments composed of sand, silt and clay alone.

All of the Bookham Common Hollows Valley Ponds have dried several times in the past and have been repeatedly recolonized on cessation of drought conditions. Sources and access routes of colonization, however, are less obvious. Bensley (1952) and others have noted the rapid recolonization of ponds by specific taxonomic groups, such as the molluscs, but no workers have studied recolonization by entire macroinvertebrate communities. In the present study, the data indicate that mud formed an important drought refuge for a limited number of benthic macroinvertebrate taxa or their resting stages. Pools of standing water within ponds supported only limited biota, so they were unlikely to form effective source populations for future re-establishment of diverse aquatic macroinvertebrate communities. Other taxa, were more likely to recolonize from other, more permanent waterbodies via flight or other dispersal mechanisms. In this case it is possible that the numerous and diverse waterbodies and watercourses within and around Bookham Common will continue to encourage re-establishment of many mobile macroinvertebrate species. Lower taxa numbers in October 1997 compared to 1993 suggest that recolonization of Isle of Wight and Western Hollow Ponds was still in progress at the time of most recent sampling. Low levels of similarity between taxa sampled in different years suggest that developing macroinvertebrate communities in ponds do not follow deterministic trajectories. Colonization mechanisms are largely stochastic and do not permit re-establishment of community compositions existing prior to perturbation. Similarity values calculated within taxa pre- and post-drought (1993 versus post-1995) in the Isle of Wight and Western Hollow Ponds show no identifiable trends and do not support the operation of deterministic recolonization pathways.

Although fish were removed from Isle of Wight Pond during 1995 (Swinney 1996), there is evidence to suggest that fish were illegally returned once water levels returned to normal, as fish fry were seen in 1997. This may partially explain why fish removal appears to have had no effect on the rate of macroinvertebrate colonization in Isle of Wight Pond. It is interesting that the fish parasitic leeches, *Piscicola geometra* and *Hemiclepsis marginata*, failed to recolonize the pond by May 1998, possibly because reintroduced fish were not infected.

Bookham Common Hollows Valley Ponds represent a class of pond that is long-established and supports diverse macroinvertebrate communities, but is also influenced by occasional perturbation caused by stochastic environmental processes. Although not true 'temporary ponds' they are subject to the same processes that affect them, albeit on a much more irregular and infrequent basis. Unlike true temporary ponds they do not possess specialist fauna adapted to persist through regular desiccation. Thus when drought occurs, recolonization processes are initiated that result in establishment of macroinvertebrate communities different from those existing prior to desiccation.

Acknowledgements

The authors are grateful to the London Natural History Society for funding this study. We are also grateful to the School of Health, Biological and Environmental Sciences, Middlesex University for providing facilities for this work, and to Merle Gwyn for confirmation of Hemiptera identification.

References

- ASHBY, C.B. 1991. General. Survey of Bookham Common. Forty-ninth year. Progress Report for 1990. *Lond. Nat.* 70: 125–126.
- BENSLEY, C.J.F. 1952. The freshwater Mollusca of Bookham Common. *Lond. Nat.* 31: 34–39.
- BEVEN, G. and RADCLIFFE, B.R. 1978. Vegetation: the ponds after conservation management. Isle of Wight Pond. Survey of Bookham Common: Thirty-sixth year. Progress Report for 1977. *Lond. Nat.* 57: 61–63.
- BIGGS, J., LANGLEY, J.M., WALKER, D., WHITFIELD A.M. and WILLIAMS, P.J. 1989. *National pond survey methods*. Pond Action. 31pp.
- CASTELL, C.P. 1945. The ponds and their vegetation. Survey of Bookham Common. Third year. Progress Report for 1944. *Lond. Nat.* 24: 15–22.
- CASTELL, C.P. 1949. Survey of Bookham Common. Seventh year. Progress Report for 1948. *Lond. Nat.* 28: 45–46.
- CASTELL, C.P. 1950. Survey of Bookham Common. Eighth year. Progress Report for 1949. *Lond. Nat.* 29: 89–90.
- DRAKE, M. 1995. Ponds as a habitat for organisms. In Hine, A. (ed.) *Woodland pond management. Proceedings of the meeting hosted by the Corporation of London, 7 July 1994*: 5–9. Corporation of London.
- ELLIOT, J.M. 1977. A key to the larvae and adults of British freshwater Megaloptera and Neuroptera. *Scient. Publs Freshwat. biol. Ass.* No. 35.
- ELLIOT, J.M. and MANN, K.H. 1979. A key to the British freshwater leeches. *Scient. Publs Freshwat. biol. Ass.* No. 40.
- ELLIOT, J.M., HUMPESCH, U.H. and MACAN, T.T. 1988. Larvae of the British Ephemeroptera. *Scient. Publs Freshwat. biol. Ass.* No. 49.
- FRIDAY, L.E. 1988. A key to the adults of British water beetles. *Fld Stud.* 7: 1–151.
- GLEDHILL, T., SUTCLIFFE, D.W. and WILLIAMS, W.D. 1976. A key to British freshwater Crustacea Malacostraca. *Scient. Publs Freshwat. biol. Ass.* No. 52.
- HARRISON, J.L. 1945. The water snails of Isle of Wight and Upper Eastern Ponds. Survey of Bookham Common. Third year. Progress Report for 1944. *Lond. Nat.* 24: 22–23.
- HARVEY, J.H. 1943. Bookham Common: a short history. *Lond. Nat.* 22: 32–40.
- HUSTON, M.A. 1994. *Biological diversity: the coexistence of species on changing landscapes*. Cambridge University Press, Cambridge.
- JEFFRIES, M.J. 1994. Invertebrate communities and turnover in wetland ponds affected by drought. *Freshwat. Biol.* 32: 603–612.
- JONES, A.W. 1960. The aquatic and wasteland plants of Bookham Common. *Lond. Nat.* 39: 76–89.
- KETT, S. M. and KIRK, R.S. 1994. A survey of the aquatic macro-invertebrate communities of Isle of Wight Pond and Western Hollow Pond, Bookham Common. *Lond. Nat.* 73: 175–180.
- MACAN, T.T. 1977. A key to the British fresh- and brackish-water gastropods. *Scient. Publs Freshwat. biol. Ass.* No. 13.
- MILLER, P.L. 1987. *Dragonflies*. Naturalists' Handbooks 7. Cambridge University Press, Cambridge.
- NICOLET, P. 2001. Temporary ponds in the UK: a critical biodiversity resource for freshwater plants and animals. *Freshwat. Forum* 17: 16–25.
- RADCLIFFE, B.R. 1978. Vegetation: the ponds after conservation management. Upper and Lower Eastern Ponds. Eastern and Western Hollows. Survey of Bookham Common. Thirty-sixth year. Progress Report for 1977. *Lond. Nat.* 57: 63.
- SAVAGE, A.A. 1989. Adults of the British aquatic Hemiptera Heteroptera. *Scient. Publs Freshwat. biol. Ass.* No. 50.
- SLÁDAČEK, V. and SLÁDEČKOVÁ, A. 1994. Corixidae as indicators of organic pollution. *Freshwat. Forum* 4: 211–213.
- STILING, P. 1999. *Ecology: theories and applications*. Prentice Hall, New Jersey.
- SWINNEY, I. 1996. Management. Survey of Bookham Common. Fifty-fourth year. Progress Report for 1995. *Lond. Nat.* 75: 120–121.
- TRONCHONI, E. 1999. *Macroinvertebrate distribution and abundance in two sets of similar ponds: an examination of the influence of season, location and chance in the colonization process*. Unpublished dissertation, Middlesex University.
- WALLACE, I.D., WALLACE, B. and PHILIPSON, G.N. 1990. A key to the case-bearing caddis larvae of Britain and Ireland. *Scient. Publs Freshwat. biol. Ass.* No. 51.

TABLE 1. Previous dry episodes in the Bookham Common Hollows Valley ponds.

Year	Isle of Wight	Western Hollow	Eastern Hollow	Lower Eastern	Upper Eastern
1887	Present	Present	Present	Present	Present
1934	Dry	Dry	Dry	Dry	Dry
1938	Dry	Dry	Dry	Dry	Dry
1944	Dry			Dry	
1947	Dry				
1948	Dry			Drained	
1949	Dry			Dry	Dry
1950					
1952	Dry				Semi-dry
1972	Excavated				
1977		Excavated	Excavated	Excavated	
1990	Dry	Semi-dry	Semi-dry	Dry	Dry
1995	Semi-dry	Semi-dry	Semi-dry	Dry	Dry

Key to descriptions: present (pond recorded as present, state unknown); dry (pond dried naturally); drained (pond drained deliberately); semi-dry (partially dry, standing water remaining); excavated (pond re-excavated or enlarged).

Information collected from: Harvey (1943), Castell (1945, 1949, 1950), Harrison (1945), Bensley (1952), Jones (1960), Radcliffe (1978), Beven and Radcliffe (1978), Ashby (1991).

TABLE 2. Macroinvertebrates from Bookham Common Hollows Valley Ponds samples collected 1993–1998. × indicates presence of taxon. Abundance was measured in 1997 and 1998.

Key: IW (Isle of Wight Pond); WH (Western Hollow Pond); EH (Eastern Hollow Pond); LE (Lower Eastern Pond); UE (Upper Eastern Pond). 93 (22 June 1993); 95 (13 September 1995); 97 (11 October 1997); 97a (1 December 1997); 98 (2 May 1998).

TABLE 2a. Platyhelminthes and Annelida.																		
Pond	IW	WH	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE	
Date	93	93	95	95	95	95	95	97	97	97	97	97a	97a	97a	98	98	98	
PLATYHELMINTHES																		
Turbellaria									1			1						
<i>Dendrocoelom lacteum</i>								3										
<i>Dugesia tigrina</i>	×										1	2						
<i>Dugesia polychroa</i>																		
<i>Polycelis tenuis</i>		×																
ANNELIDA																		
Oligochaeta																		
<i>Aulodrilus pluriset</i>	×																	
<i>Stylaria lacustris</i>	×	×		×	×		×	5	10	10	64	26						
Other oligochaete spp.			×	×	×		×											
<i>Chaetogaster limnei</i>			×	×	×													
Hirudinea																		
<i>Piscicola geometra</i>	×	×							5				3	1				
<i>Theromyzon tessulatum</i>	×	×															6	
<i>Hemiclepsis marginata</i>	×	×															6	
<i>Glossiphonia heteroclita</i>		×											3			3		
<i>Glossiphonia complanata</i>																		
<i>Helobdella stagnalis</i>	×	×	×	×	×		×	1	12	3			42		1	20		
<i>Erpobdella octoculata</i>	×	×	×	×	×		4	4	5	1		2	1		3		2	

NB: Non-hirudine Oligochaeta and Platyhelminthes not identified in 97a and 98.

TABLE 2b. Mollusca.

Pond	IW	WH	IW	WH	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE
Date	93	93	95	95	95	95	95	95	95	97	97	97	97	97
MOLLUSCA														
Gastropoda														
<i>Lymnaea auricularia</i>		×							2	1				
<i>Lymnaea palustris</i>		×							1	7		8	24	12
<i>Lymnaea peregra</i>		×		×								189	87	10
<i>Lymnaea stagnalis</i>										1		1	2	
<i>Physa acuta</i>									38	21	24			
<i>Physa fontinalis</i>	×	×		×		×			88	72	223		1	2
<i>Anisus vortex</i>	×	×								144	563	458		10
<i>Armiger crista</i>							×				2	116		
<i>Hippeutis complanatus</i>										4				
<i>Planorbarius corneus</i>				×									9	
<i>Gyraulus albus</i>		×								35	116	25		14
<i>Planorbis planorbis</i>										10		19		
<i>Segmentina complanata</i>		×												
<i>Acroloxus lacustris</i>	×	×								1	6		13	
<i>Ancylus fluviatilis</i>	×													
<i>Potamopyrgus antipodarum</i>	×													
Bivalvia														
<i>Pisidium</i> sp.	×	×							45	5				
<i>Sphaerium</i> sp.	×	×							173	35	24	220		100

NB: Mollusca not identified in 97a and 98.

TABLE 2c. Hemiptera.

Pond	IW	WH	IW	WH	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE
Date	93	93	95	95	95	95	95	95	95	97	97	97	97	97	97a	97a	97a	97a	98
Hemiptera																			
<i>Hydrometra</i> nymph																		1	1
<i>Hydrometra stagnorum</i>		×																	
<i>Gerris</i> nymph	×	×													1	3	11	1	10
<i>Gerris lacustris</i>																			
<i>Nepa cinerea</i>	×	×								1									
<i>Ranatra linearis</i>										1									
<i>Ilyocoris cinicoides</i>	×	×											1						1
<i>Notonecta</i> nymph	×	×																2	2
<i>Notonecta glauca</i>										3			4	8					
<i>Notonecta marimorea viridis</i>										4	1	12	7	49					
<i>Plea leachi</i>		×									10								1
<i>Micronecta scholtzi</i>	×		×		×														
<i>Cynatia coleoprata</i>										24	1								
<i>Callicorixa praeusta</i>		×									3				4	1	2		2
<i>Corixa puuctata</i>		×								1	2	2		8			4		
<i>Hesperocorixa linnaei</i>														1					
<i>Hesperocorixa sahlbergi</i>										1				4					1
<i>Hesperocorixa noesta</i>													11			1			
<i>Sigara</i> spp.																			
<i>Sigara dorsalis</i>		×								2	3		1				20	9	
<i>Sigara distincta</i>												8							
<i>Sigara falleni</i>	×	×								24								19	35
<i>Sigara fossarium</i>		×																	
<i>Sigara lateralis</i>			×		×					5								1	
<i>Sigara staguialis</i>																			
Notonectid nymphs	×																		
Micronectid nymphs																			
Corixid nymphs	×	×		×					×	5					1				
																11	22	2	62

TABLE 2h. Coleoptera (Hydrophilidae, Hydraenidae and Dryopidae).

Pond	IW	WH	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE
Date	93	93	95	95	95	95	95	97	97	97	97	97	97a	97a	97a	97a	98
Coleoptera																	
<i>Helophorus brevipalpis</i>	×							1				1	2			1	7
<i>Helophorus grandis</i>									2	1							
<i>Helophorus obscurus</i>							1										
<i>Cercyon conrexiusculus</i>													3				4
<i>Hydrochus angustatus</i>	×													1			
<i>Hydrobius fuscipes</i>								1						2			
<i>Enochrus coarctatus</i>								2							1	2	2
<i>Helochaeres lividus</i>																	
<i>Cymbiodyta marginella</i>								1									1
<i>Laccobius bipunctatus</i>																	
<i>Laccobius minutus</i>	×												2			2	2
<i>Anacaena globulus</i>	×							9	2			3	1			1	
<i>Anacaena limbata</i>									1								
<i>Linnebius truncatellus</i>																3	1
<i>Ochthebius minimus</i>										4							
<i>Dryops</i> sp.																	
Hydrophilidae larvae													5	5	1		

TABLE 2i. Numbers of individuals and taxa from Bookham Common Hollows Valley ponds samples 1993–1998.

Pond	IW	WH	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE	IW	WH	EH	LE	UE
Date	93	93	95	95	95	95	95	97	97	97	97	97	97a	97a	97a	97a	98
Total individuals							756	1,152	2,119	3,105	421	68	116	103	70	73	569
Total taxa	44	50	11	13	12	0	8	36	39	48	57	21	9	13	11	13	9

TABLE 3. Jaccard's Coefficient of Similarity between macroinvertebrate taxa present in samples from Bookham Common Hollows Valley ponds 1993–1997. Values of $0 \leq 0.3$ indicate 'dissimilar', $> 0.3 \leq 0.6$ 'similar'; > 0.6 'replicate sample'.

Key: IW Isle of Wight Pond; WH Western Hollow Pond; EH Eastern Hollow Pond; LE Lower Eastern Pond; UE Upper Eastern Pond.
93 (22 June 1993); 95 (13 September 1995); 97 (11 October 1997).

	IW 1993	WH 1993	IW 1995	WH 1995	EH 1995	UE 1995	IW 1997	WH 1997	EH 1997	LE 1997
IW 93	1									
WH 93	0.35	1								
IW 95	0.10	0.09	1							
WH 95	0.06	0.13	0.41	1						
EH 95	0.10	0.09	0.57	0.41	1					
UE 95	0.04	0.06	0.29	0.25	0.50	1				
IW 97	0.25	0.27	0.12	0.09	0.12	0.08	1			
WH 97	0.19	0.35	0.11	0.11	0.09	0.07	0.34	1		
EH 97	0.20	0.32	0.09	0.13	0.07	0.06	0.36	0.38	1	
LE 97	0.18	0.31	0.05	0.10	0.06	0.07	0.24	0.36	0.43	1
UE 97	0.26	0.25	0.07	0.10	0.14	0.12	0.27	0.30	0.33	0.28

TABLE 4. Invertebrate taxa and percentage organic matter in mud samples from Bookham Common Hollows Valley ponds during drought conditions in September 1995.
× indicates presence of taxon, n.s. no sample taken.

Invertebrate taxa	Isle of Wight		Western Hollow		Eastern Hollow		Lower Eastern		Upper Eastern	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
Oligochaeta					×				×	
Leech cocoons			×						×	
<i>Armiger crista</i>					×					
Cladoceran ephippia					×	×			×	×
Ostracoda									×	
Corixid nymphs									×	
Chironomid larvae									×	
Ceratopogonid larvae		×		×					×	
Tipulid larvae	×				×				×	
Total no. of taxa	1	1	1	1	4	1	n.s.	0	8	1
% organic matter in pond mud		1.6		5.2		8.3		11.2		13.0

Hampstead Heath Survey

Progress Report for 2001

General (Colin Bowlt, Chairman, Hampstead Heath Survey)

Between ten and twenty members turned up on the regular monthly survey days throughout the year. Additionally, on most Thursdays, the botanists, continued recording plants on a 100-metre grid basis. They are now in a position to produce draft distribution maps but have been held up by a computer problem (an oft-heard tale these days). When this is sorted out the publication of a new Heath flora can be considered.

John Barrington is continuing his bird counts on the Hampstead ponds but has decided to discontinue his transect counts. These are extremely time-consuming and the results are a very coarse index of bird populations (I also came to the same conclusion with the Ruislip Woods).

The only contribution ready for publication is by Amanda Waterfield on past records of lichens on the Heath.

Historical records of lichens on Hampstead Heath

(Amanda Waterfield)

Some of the earliest records must be those of Johnson in 1629, which probably referred to *Cladonia*, but as there is no herbarium to consult we can never be certain. He started one of his lists with a lichen plucked from the wall of an inn, and beer and botany is still a good way to pass a day. Hampstead has always been a popular place for biologists to visit and there are numerous flowering plant records but the cryptogams, as always, are not so well recorded. However, in the Sloane Herbarium at The Natural History Museum some of the lichens collected by The Revd Adam Buddle (c.1660–1715) can be seen; these are the first records known that have been localized to the Heath (**BM**: Herb. Sloane 115:1.3.6). Buddle's herbarium was considered the most trustworthy and accurately named of the period and was used by Sherard, Bobart, Tournefort and Dillenius.

Cladonia, the pixie cups, are always popular and an early collection is that of *Cladonia gracilis* on 7 March 1696/7 labelled in James Petiver's (1664?–1718) hand but perhaps collected by Buddle (**BM**: Herb. Sloane 285, sheet 32) as there is another collection of this species by Buddle (115:1), and the species is mentioned by Hill (1759) as is *Cladonia uncialis* recorded in 1748 and *Coelocaulon aculeatum*. Also in the Sloane Herbarium are specimens of *C. furcata* (115:1), *C. portentosa* (115:1), *C. rangiformis* (115:1) and *C. subulata* (115:3) collected by Buddle. Another botanist, James Smith, the founder of The Linnean Society of London, collected *C. pyxidata* on the Heath. Other lichens must have been around such as the 'yellow spangled crustaceous moss', which we know as *Xanthoria parietina*, the bright orange foliose lichen usually associated with enriched sites such as farmyards, for in those days Hampstead would have been much more rural.

The Heath is the type locality of *Cladonia peziziformis*, a Biodiversity Action Plan (BAP) species. The original specimen, the holotype, collected by Dillenius is in Herb. Sherard (**OXF**). Dillenius also recorded *Cladonia cervicornis* ssp. *verticillata* and a specimen of *Leptogium corniculatum* can be found in Herb. Sherard (**OXF**); this is one of the jelly lichens which uses cyanobacteria as a partner as opposed to green algae. He might have found the *Pertusaria amara* 'on trees in Cainwood' (Kenwood) now in Herb. Morison (**OXF**).

In the mid nineteenth century The Revd James Crombie (1894), author of the great monograph of British lichens, might have been spotted strolling across the

Heath, stooping to look at *Peltigera polydactyla* or peering at wood to see *Hypocenomyce scalaris* or *Placynthiella uliginosa*, which are mentioned in Trimen and Dyer (1869). As no record was left we will never know if *Lecanora conizaeoides*, which he described from Epping, was found on the Heath. This was a time of change when the first hints of industrial pollution were making themselves felt. There is no record of any *Lobarion* species and we have to be grateful that they left what scant collections as we can find in our great museum herbaria so we can catch a glimpse of the Heath as it was in their time.

We are in another time of change as the lichens return to London and now there is a new nitrogen-tolerant assemblage. I hope to be doing a full lichen survey of Hampstead in 2002 as a baseline for future records. If anyone has any records I would be grateful to receive them.

Bibliography

- CROMBIE, J.M. 1894. *A monograph of lichens found in Britain*, 1. London.
- DILLENIIUS, J.J. 1741. *Historia Muscorum*. Oxford.
- GILMOUR, J.S.L. (ed.) 1972. *Thomas Johnson: Botanical journeys in Kent & Hampstead*. A facsimile reprint with Introduction and Translation of his *Iter Plantarum* 1629 and *Descriptio Itineris Plantarum* 1632. Pittsburgh, Pennsylvania.
- HAWKSWORTH, D.L. and SEAWARD, M.R.D. 1977. *Lichenology in the British Isles 1568–1975*. The Richmond Publishing Co. Ltd, Richmond.
- HILL, J. 1759. *Flora Britannica*. London.
- LAUNDON, J.R. 1970. London's lichens. *Lond. Nat.* **49**: 20–69.
- TRIMEN, H. and DYER, W.T.T. 1869. *Flora of Middlesex*. London.

Botanical records for 2001

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Abstract

New vice-county records in 2001 were *Poa infirma* in Surrey and Middlesex and *Atriplex longipes*, *Geranium purpureum* and *Glaux maritima* in Middlesex, and many casual aliens. *Saxifraga tridactylites* appeared abundantly on railways; this occurrence and the increase of *Polypogon viridis* and *Senecio inaequidens* are illustrated by maps, created using Dmap.

Introduction

I shall remember 2001 as the year when I saw unexpectedly large or very large numbers of rue-leaved saxifrage *Saxifraga tridactylites* by railway tracks from Victoria into Kent. Occurrence of this species, usually thought of as an uncommon wall plant, by railways is not quite unprecedented; in the appropriate places, earlier records will be mentioned, and I have recently learned that it was seen at two railway stations in East Kent in 1999–2000 (A. Henderson, pers. comm.). Figure 1 shows how these observations alter the pattern of distribution of the species in the London Area. It was also the year when early meadow-grass *Poa infirma*, until very recently regarded as a native British plant found only in the extreme South-West, was shown to occur in two places in London by Paul Stanley and Eric Clement, who travelled from Hampshire to realize their expectation of finding it. It is far from clear whether these two species had been present for some years but overlooked (easily done in the case of the grass which is very like the extremely common annual meadow-grass *Poa annua*), or whether there are factors explaining their recent colonizations, undoubtedly aided by the abundant early rainfall of last year. Another effect of this rain, mentioned by John Palmer, is that of soil from gardens being washed out onto country roadsides. In one place near Hextable he observed such soil piled up by bulldozers to a depth of a foot. He suggests that this may result in increasing quantities of garden plants being transported to sites where they can grow outside the gardens.

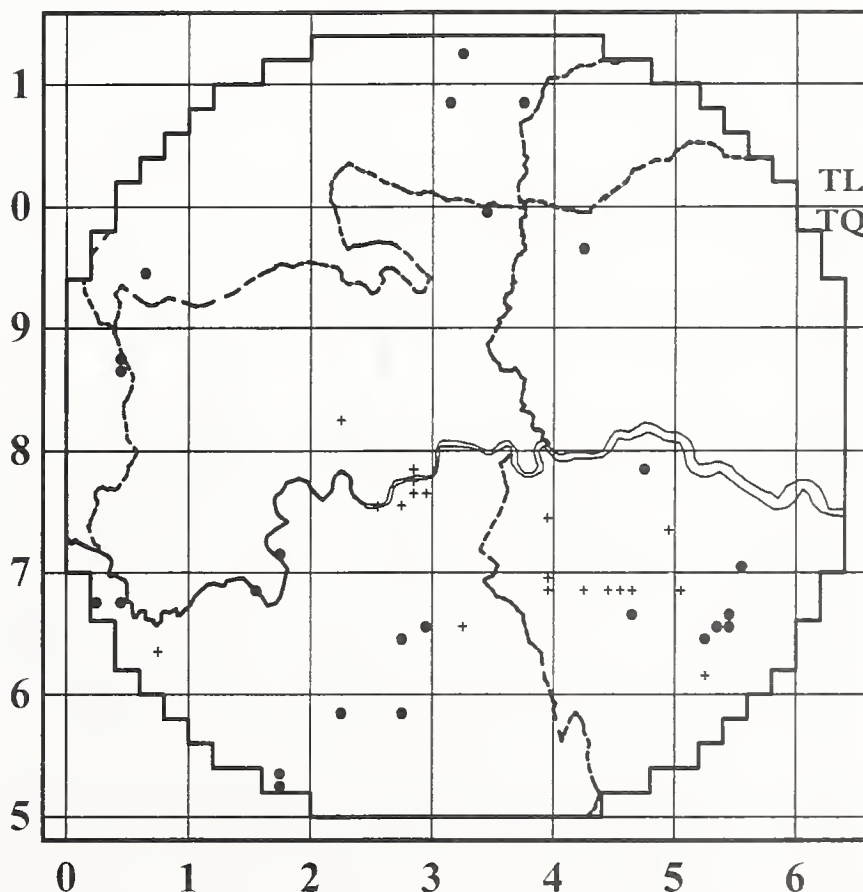


FIGURE 1. All records of *Saxifraga tridactylites* since 1980. Records from railway habitats are indicated +; all such records are mentioned in the text.

A few hundred recent records added to the database during the year concerned mistletoe *Viscum album*, and were received as a result of appeals to members of the London Natural History Society and London Wildlife Trust, as part of an action plan to conserve this species. Our only North Essex records in 2001 were of mistletoe.

V.C. 16, West Kent

In a vain search for grey club-rush *Schoenoplectus lacustris* subsp. *tabernaemontani* in the Thames from Thamesmead West down to Tripcock Ness, I confirmed that viper's bugloss *Echium vulgare*, blue fleabane *Erigeron acer*, ploughman's-spikenard *Inula conyzae* and narrow-leaved bird's-foot-trefoil *Lotus glaber* can still be found in the London borough of **Greenwich**. I found a large patch of the increasing alien grass rescue brome *Ceratochloa cathartica* beside Whinchat Road on this occasion. Eight of my *Saxifraga tridactylites* records were from **Bromley**, from north-west of Shortlands through to St Mary Cray Station, where there were large numbers on some of the tracks, as noted the previous year by Joyce Pitt (Pitt 2001). A previous record of this saxifrage on the railway is David Nicolle's from **Bexley** Station in 1996 (Burton 1997: 194). His 2001 records from the same borough are weasel's-snout *Misopates orontium* as a short-term garden weed close to home, and narrow-leaved ragwort *Senecio inaequidens*, which continues to increase on the east side of London (Figure 2). Another record of it is John Palmer's six-foot wide plant from stony waste at Barnes Cray. I have mentioned before the difficulty of selecting from Mr Palmer's many records of mostly casual alien plants. His long and very successful sojourn in the topmost echelon of the Wild Flower Society has encouraged him to seek out any named plants which he had not seen before. Sometimes these will be escaped garden plants which can be given a cultivar name, on the basis of a sketchy description; these can be ignored here if the species is a commonly escaping one. On other occasions they will be garden plants not generally seen apparently 'wild', a term the application of which is open to interpretation. These will usually be worth a mention if they have not

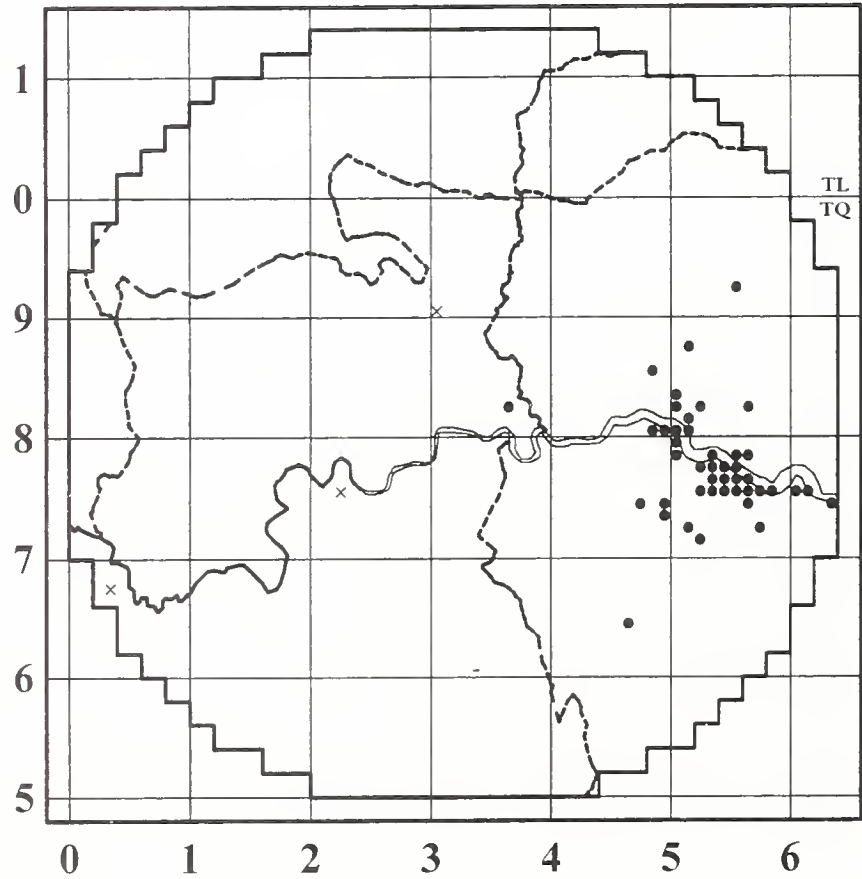


FIGURE 2. Records of *Senecio inaequidens*. The three crosses indicate isolated single plants.

appeared in our records before. There were two such in Bexley in 2001. Trumpet vine *Campsis radicans*, which Mr Palmer found on an old wall between Old Bexley and Crayford, was in the company of *Solanum crispum*. Although not in a garden, it seems likely to me that these two garden climbers were planted together. *Begonia* × *semperflorens* was on a dump of garden waste nearby in the grounds of Hall Place, i.e. a garden plant was found scarcely out of a garden.

The London Natural History Society collects records not only from London but also from other sites up to 20 miles from St Paul's Cathedral. The rest of Mr Palmer's first records from the London Area as so defined are from places in this part of **Kent**, and some of them are of greater interest than those just mentioned. At Rowhill Woods near Hextable he found a large patch of the alien subspecies *ucranicum* of ramsons *Allium ursinum* by a track; unlike the native subspecies *ursinum* this has pedicels smooth to the touch, an inconspicuous character, raising the interesting possibility that in other, or perhaps even all, places where *A. ursinum* occurs as an escape from cultivation, it is represented by subsp. *ucranicum*. Another new plant mentioned from Rowhill Woods is a different *Allium* species, *A. longanum*. The problem in this case is that of identification. In such a place one can expect the plant to be one found in horticultural literature, but descriptions there lack botanical precision. The country of origin is unknown, so there is no certainty that even large regional floras like *Flora Europaea* will help. To be satisfied that *Allium longanum*, an uncommon east Mediterranean species apparently rare in cultivation, was correctly named, I would need to be assured that it had been matched with herbarium material of the species from its native range. The case of *Phuopsis stylosa*, the Caucasian crosswort, is much easier. There are many hundreds of *Allium* species known to science, but only one *Phuopsis*. It gets a passing mention in British floras; Clapham, in Clapham et al. (1962: 777), says it is 'biennial', Stace (1997: 644) 'annual to perennial'. In my experience it is perennial, spreading stoloniferously to form a dense patch, and I can readily understand how having once been planted or dumped on a roadside bank between Hartley and Longfield it could become established there. The whole plant has a distinctive odour not unlike that of valerian, and rabbits will not touch it. Mr Palmer's other first records for our area can be dealt with more quickly: *Pittosporum tenuifolium* as seedlings not far from planted bushes at Hextable; '*Aquilegia clematiflora*' near an old car-park at Wilmington, but this is not a good botanical species so much as a name for sports of columbine in which the sepals lack spurs; *Hebe albicans* by a footpath at Hawley, which might have started as a seed from a garden plant; *Viburnum trilobum* and *V. sargentii* var. *flavum* in woodland at Wilmington, originally planted but now present in quantity; *Rosa wilmottiae* of similar history near Horton Kirby, and a double-flowered *R. odorata* north of Crockenhill. A new plant for Kent is *Conyza bilbaoana* found by Eric Philp and Peter Heathcote at Dry Hill, Sundridge (Philp 2002); perhaps it will soon appear in new places further into the county. I found prodigious quantities of *Saxifraga tridactylites* on the up platform at Shoreham Station, and water bent *Polypogon viridis* as a garden weed in my home village of Eynsford, another species whose increase can be documented by a map (Figure 3). Most of the records are from pavements, especially permanently damp ones. Jane Woodliff saw *Senecio inaequidens* from a train west of Stone Crossing. Joyce Pitt made some good discoveries surveying the flora of the chalk cliffs and steep banks surrounding the Bluewater shopping centre near Stone, most notably the rare and slender grass *Vulpia unilateralis*, knapweed broomrape *Orobanche elatior*, wild liquorice *Astragalus glycyphyllos* and man orchid *Aceras anthropophorum*. Eynsford has recently acquired a field near the River Darent to prevent building development, and here Mrs Pitt found a small patch of meadow saxifrage *Saxifraga granulata*.

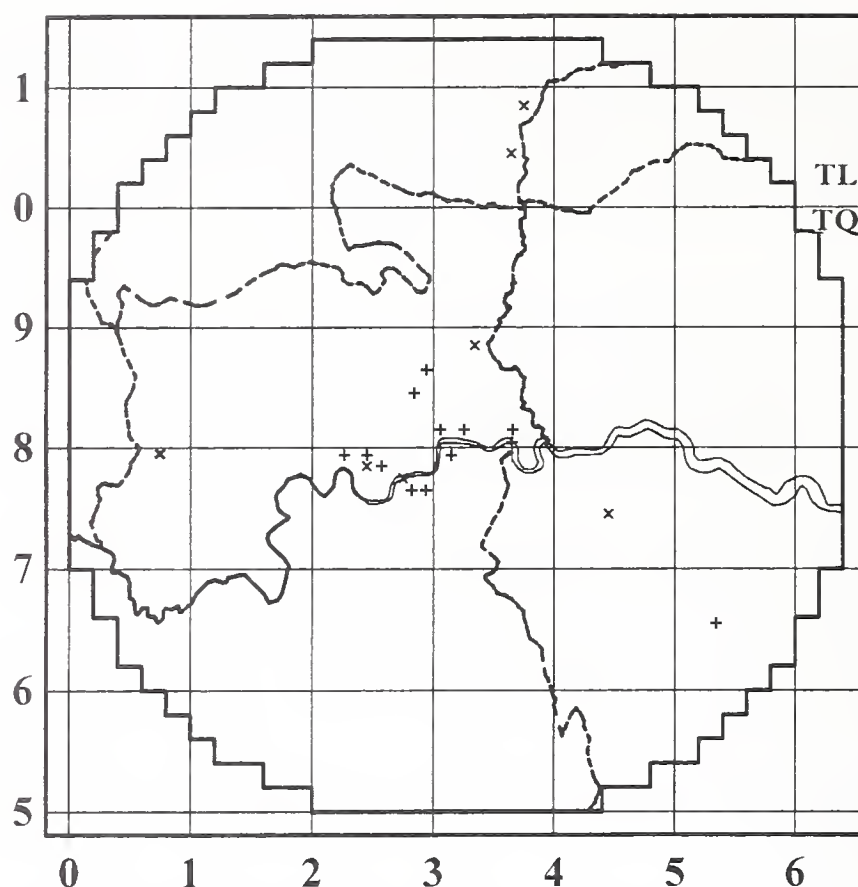


FIGURE 3. Records of *Polypogon viridis*. Records 1969–93 are marked ×; records 1998– are marked +.

V.C. 17, Surrey

As in other vice-counties, I start with records from inner London boroughs and work outwards. Mr Clement and Mr Stanley found knotted hedge-parsley *Torilis nodosa* in **Southwark** Park. In **Lambeth** they found the same plant in Vauxhall and lesser chickweed *Stellaria pallida* in the Jubilee Gardens near Waterloo. Also at Waterloo Margo Nagle found *Polypogon viridis*. One of my sites for *Saxifraga tridactylites* was at the south end of Herne Hill Station. There was even a plant of mistletoe in Lambeth Walk. Battersea Park in **Wandsworth** is one of Mr Stanley and Mr Clement's sites for *Poa infirma*; they found about a hundred plants altogether in a variety of habitats, not only the slightly poached turf favoured by *Stellaria pallida* and *Torilis nodosa*, which they also found in this borough, which includes the railway where it passes Battersea Power Station, another of my sites for *Saxifraga tridactylites*, and Clapham Junction, where the same species was seen by Alan Leslie. An abundance of *Polypogon viridis* was observed by Alan Lewis in paving cracks around the community centre in Thessaly Road. Further railway plants were seen by Ian Kitching in Wandsworth, including several plants of the alien subsp. *intermedia* of nipplewort *Lapsana communis* on the embankment by Osiers Road. Dr Kitching's name is a new one in our botanical records. His many contributions show laudable attention to the characters used for distinguishing flowering plant species. Most are from **Merton** where he lives. His from Wimbledon Common is our first record of subsp. *pyrenaicus* of sheep's sorrel *Rumex acetosella*, but it must be admitted that we have only one of the other subspecies *acetosella*; our members have not generally attempted to subdivide this common plant. His other first records for our area are of Forrest's tutsan *Hypericum forrestii* on waste ground near the Darul Amaan Mosque, and several small saplings of heart-leaved willow *Salix eriocephala* in a verge by Meadowsweet Close. The first might be a relic of a garden on the same site, and the willows might conceivably have been planted. The best result of his attention to detail must be his report of river water-crowfoot *Ranunculus fluitans* from the River Wandle north of the

Savacentre at Collier's Wood. The previous record of this species from this river dates from Lousley's youth in 1925; recently it has been assumed, it now appears too readily, that only the similar *Ranunculus penicillatus* subsp. *pseudofluitans* is worth looking for in London rivers. To check for *R. fluitans*, remove all the petals, stamens and ovaries from a flower in order to examine with a hand lens the hairiness of the receptacle to which they had been attached; it should have only a few hairs or none, whereas *R. penicillatus* has a dense growth of short hairs. Several of Dr Kitching's records are from public gardens and the like. In a garden near the Wandle at Collier's Wood he found corn chamomile *Anthemis arvensis*, checked from details of the fruit and their supporting scales, and several scattered plants of the native golden-rod *Solidago virgaurea*. *Conyza bilbaoana* came from a container in Kingston Road, Raynes Park. Cut-leaved dead-nettle *Lamium hybridum* was found under a bench in a garden on the north side of Bushey Road, Wimbledon Chase, and from cracks in a wall at the B & Q car park in Western Road, Mitcham. Gravel outside the sales area of the garden centre at Morden Hall Park produced the prostrate alien spotted spurge *Euphorbia maculata*. This was soon weeded out, but later in the season there were many plants of golden dock *Rumex maritimus* on waste ground behind the garden centre. Several plants of blinks *Montia fontana* were found in gardens by the road into Morden Park, as well as in a more typical locality by a path on Mitcham Common; seeds from both populations were examined microscopically to prove that they were subsp. *chondrosperma*, the usual subspecies in south-east England of this easily overlooked plant. His record of chamomile *Chamaemelum nobile* is not of the better known population in the borough on Mitcham Common, but the other, on rough turf by a playing field near Raynes Park, which it is useful to have exactly localized. It is to be hoped that the recent acquisition of this field by Wimbledon Football Club will not harm the plant. Dr Kitching saw three plants of twiggly mullein *Verbascum virgatum* on railway ballast north-west of Wimbledon Park Station. I can match that with more than forty plants of white mullein *Verbascum lychnitis* south-west of Wimbledon Station. Dr Kitching's records include two water-starwort *Callitriche* species from the stream by the **Sutton** Ecological Centre at Carshalton, confirmed from fruit and stamen characters, *C. platycarpa* in the water and *C. stagnalis* on the mud. George Hounscome and Mary Clare Sheahan independently reported keeled-fruited cornsalad *Valerianella carinata* from near Barnes Station in **Richmond upon Thames**.

Having learned of the discovery of *Poa infirma* in the London Area, George Hounscome found the plant for himself at Brooklands near Weybridge, just inside our area, at the edge of a runway of the former airfield site here. He was preparing for our meeting of 28 April, at which many other rare plants of sandy ground already known from here were seen, among them upright chickweed *Moenchia erecta* and shepherd's cress *Teesdalia nudicaulis*; the date was too early for sheep's-bit *Jasione montana* and small cudweed *Filago minima* seen here later by Barry Phillips. The **Surrey** Flora Committee's newsletter mentions a few garden outcasts recorded for the first time in the LNHS area by Julia Leslie and Ken Page: three clumps of snake's-head iris *Hermodactylus tuberosus* in Burwood Park; staff-vine *Celastrus orbiculatus* suckering along a hedge on Epsom Downs; a bush of *Lonicera standishii* by a path alongside railway railings at Reigate; and *Epimedium* × *versicolor* well established by a path on Littleworth Common (though it may be that our two old records of barren-wort *E. alpinum* belong here). Also on Littleworth Common they found Turkish tutsan *Hypericum xylosteifolium* becoming overgrown, recorded once before in our area, though not in Surrey. Mr Page and others found large patches of needle spike-rush *Eleocharis acicularis*, a very rare plant in our area, at the edge of a pond on Burgh Heath. From the same source I have the second record for the area of Lleyen cotoneaster *Cotoneaster villosulus*, a small bird-sown bush found by Eileen

Taylor on the Howell Hill Nature Reserve at East Ewell. Steve Gale sent me records usefully confirming the continued presence in known localities of rarities elecampane *Inula helenium*, musk orchid *Herminium monorchis* and autumn lady's-tresses *Spiranthes spiralis*. Seth Gibson told me of the reappearance of meadow thistle *Cirsium dissectum* discovered in the course of work on Epsom Common by the Surrey Wildlife Trust. Tom Cope saw *Saxifraga tridactylites* on Weybridge Station. An older railway record is from Chipstead Station, where John Williams saw it abundantly all along the lines and platforms in 1998.

V.C. 18, South Essex

John Edgington reported sea beet *Beta vulgaris* subsp. *maritima* and sea couch *Elytrigia atherica* from the Thames wall at Lyle Park, **Newham**. Jane Woodliff's records include bur parsley *Anthriscus caucalis* and common stork's-bill *Erodium cicutarium* on a verge by Rainham Road North, and *Senecio inaequidens* on Dagenham Heathway in **Barking and Dagenham**, and the latter also on a verge in Grenfell Avenue near Roneo Corner in **Havering**. This borough was surveyed as part of the GLA Strategy Directorate's rolling programme of contracts, by Barry Nicholson and Jon Riley. They found huge numbers of annual beard-grass *Polypogon monspeliensis*, previously known in London only as occasional casual plants, on the Cleanaway tipping site on Rainham Marshes. Elsewhere on the Marshes there were good numbers of *Rumex maritimus* and *Anthriscus caucalis*. In the northern part of the borough they found dozens of plants of corky-fruited water-dropwort *Oenanthe pimpinelloides* in one pasture and dyer's greenweed *Genista tinctoria* in another. In private woodland they found thin-spiked wood-sedge *Carex strigosa* in a third extant London locality. The outer boundary of the borough runs through the Belhus Woods Country Park north of Aveley. I learned of Mary Smith's detailed survey of this area too late to include any records from it last year, but in any case some of her best records did not come until 2001, in Havering a few non-flowering plants of lily of the valley *Convallaria majalis*, which might conceivably be native here in woodland, and very large numbers of *Anthriscus caucalis* and *Montia fontana* subsp. *chondrosperma* by a recently 'landscaped' gravel-pit lake; in both Havering and **Essex** in shallow water tapegrass *Vallisneria spiralis* previously known in south-east England only from the Lea Navigation and associated waterways; and in Essex a plant of beautiful cotoneaster *C. amoenus*, the second record from the LNHS area. Miss Woodliff had the opportunity of surveying Purfleet Ranges which have now become a reserve of the RSPB. She found a good selection of plants here including two water-crowfoots, *Ranunculus baudotii* and *R. aquatilis*, two rare docks, *Rumex maritimus* and marsh dock *R. palustris*, dark mullein *Verbascum nigrum*, divided sedge *Carex divisa* and best of all a single plant of cat-mint *Nepeta cataria* on a spoil heap which was subsequently buried. I made a quick visit to this area myself in the hope of seeing the latter, which had been abundant when we had a field meeting here over thirty years ago. I missed it, but Jane missed the corn parsley *Petroselinum segetum* which I saw. On the same day I found my own site for *Senecio inaequidens*, a little to the west of the small colony of rough dog's-tail *Cynosurus echinatus* which has been by the A1306 (not always called that) since at least 1957.

V.C. 20, Herts.

Hairy buttercup *Ranunculus sardous* is a very rare plant in this vice-county, but on Totteridge Fields Nature Reserve in **Barnet** where Diana Griffith found it it is likely to have been sown, as corn buttercup *R. arvensis* and cornflower *Centaurea cyanus* surely were. This nature reserve is not a suitable place to which to introduce these former cornfield weeds.

V.C. 21, Middlesex

My railway records of *Saxifraga tridactylites* include many thousands of plants in front of the carriage sheds south of Ebury Bridge in the **City of Westminster**. Aaron Woods reported having seen many plants of St Martin's buttercup *Ranunculus marginatus* in short grass by the Regent's Park lake, a new plant for the London Area. The ground had been sown with a 'wildflower mix' but this species, which as an alien plant in the British Isles is known almost exclusively from the Isles of Scilly, is not a normal constituent of the available mixes. Michael Braithwaite, a visitor to London, sent me a specimen of water chickweed *Myosoton aquaticum* which he had collected in flower on 20 November in Green Park, a distinctly unusual casual. Prof. Edgington found bugle *Ajuga reptans* in grass at St James's Piccadilly and in the Great Cloister at Westminster Abbey. There were unusually many plant records from the small area of the **City of London** in 2001, due to our meeting on 27 June, which was fully reported in our *Newsletter*, and the preparation for it by Prof. Edgington. *Scutellaria lateriflora* L., which had sown itself from the gardens of the Barber-Surgeons' Hall, where conveniently it was labelled, onto a nearby fragment of the London Wall, appears to be a first British record. The 'curry-plant' of gardens could be seen, by peering over a parapet, to have sown itself onto the top of a Roman wall-tower; this is *Helichrysum italicum*, referred to in the horticultural literature as '*H. angustissimum*', and incorrectly in the *Newsletter* as '*H. stoechas*', a different species. Mr Hounscome found fern-grass *Catapodium rigidum* and Neapolitan garlic *Allium neapolitanum* by St Giles Cripplegate. I saw a dozen plants of round-leaved crane's-bill *Geranium rotundifolium* on the railway by the south end of a platform at Blackfriars Station; this is well out over the Thames, though still less than half-way across. The most important Middlesex records of 2001 were from **Tower Hamlets**. Mr Stanley's *Poa infirma* was from two places near kerbs on the Isle of Dogs, in one of them closely associated with *Stellaria pallida* and *Torilis nodosa*, both of which he also saw elsewhere on the Isle. (You might think you have a good chance of finding *Poa infirma* for yourself by looking in likely places where these two species are already known; I tried this in early 2002, and it did not work for me). There was also a large plant of bur medick *Medicago minima* in the same sort of situation due south of the Mudchute Station building. In preparation for a meeting in 2002, Prof. Edgington went to the East India Dock Basin in the extreme eastern corner of v.c. 21 and found it to be of extraordinary botanical interest, principally because of the flora of the lowest 5–15 metres of the muddy shore on the northern side of the basin. Brackish mud is extinct as a natural habitat in the vice-county, but the habitat was re-created when the then derelict basin was converted to a nature reserve in the mid 1990s. The plants included sea-milkwort *Glaux maritima* never before recorded in Middlesex, grey club-rush *Schoenoplectus lacustris* subsp. *tabernaemontani* restored to the flora of the vice-county, its other site in Syon Park having been converted a few years ago to a botanically dead trout fishery, and divided sedge *Carex divisa* which may have gone from its only recent Middlesex locality. The last two were known in the area before the excavation of the docks. Prof. Edgington also mentioned an abundance of the somewhat salt-tolerant alien buttonweed *Cotula coronopifolia* which made me suspicious of the status of all of these, because of previous observations of its appearance, along with other aquatic and riparian plants, in a couple of other London localities where conservation work had been done on ponds. However Prof. Edgington's enquiries from the rangers of the Lee Valley Regional Park Authority who run the nature reserve confirmed that all plants on the mud had come there naturally, and that buttonweed had also colonized a new pond nearby. Another new Middlesex plant from the Dock Basin was long-stalked orache *Atriplex longipes*, determined by Dr J.R. Akeroyd, two plants of which he found growing out of the dock wall. In other places in Tower Hamlets Prof. Edgington recorded various wall ferns, including established maidenhair fern

Adiantum capillus-veneris and a single plant of rustyback *Ceterach officinarum* near the canal at Mile End, and little-robin *Geranium purpureum* by the Hertford Union canal path. The last was seen independently by John Swindells, and is yet another new plant for Middlesex, though recently discovered populations by railways in Essex are not far away. Earlier than Prof. Edgington's first visit to the East India Dock basin, Mr Swindells had found there Danish scurvy-grass *Cochlearia danica*, confirmed by a specimen I have seen. He saw pink-headed knotweed *Persicaria capitata* as a street weed in Mile End, and *Senecio inaequidens* in two places in Mile End Park. He led our meeting of 8 September along canal paths, at which Austrian chamomile *Anthemis austriaca* was seen sown in the 'ecology park' also in Mile End Park. This plant often does duty for the 'native' corn chamomile *A. arvensis* in 'wildflower' seed mixtures. Just such a plant was collected in Tower Hamlets Cemetery by Mr Hounscome. David Nicolle's discovery of a substantial population of *Euphorbia maculata* has already been reported (Nicolle 2002).

Prof. Edgington found marsh marigold *Caltha palustris* on the New River footpath opposite the east Stoke Newington Reservoir in **Hackney**; could it have been planted there? The place where orange balsam *Impatiens capensis* was seen near Bow railway bridge on our meeting of 8 September is in **Newham**, in spite of being east of the Lee Navigation. David Bevan, the Conservation Officer for **Haringey**, told me of three species occurring casually on soil brought into Queen's Wood on the site of demolished changing rooms: celandine saxifrage *Saxifraga cymbalaria*, plentiful pale galingale *Cyperus eragrostis* and a few plants of London bur-marigold *Bidens connata*. I wonder at times whether the last is becoming deliberately introduced to London sites because of its common name, invented by Stace (1997) for his *New flora*. Mr Bevan told me of a new plant for his borough, fiddle dock *Rumex pulcher* found in a South Tottenham Council estate lawn by Brian Wurzell. Less significant new plants for Haringey are three short-term escapes found by Mr Woods in Wood Vale, Highgate, Mediterranean spurge *Euphorbia characias*, Japanese anemone *Anemone* \times *hybrida* and Himalayan bistort *Persicaria affinis*, the last, a small plant on a wall, also new for our area generally; and Mr Hounscome's lovage *Levisticum officinale*, persisting for twenty years in an abandoned allotment. Mr Woods, with Roy Maycock, found stinking iris *Iris foetidissima* and woodruff *Galium odoratum* near the Colebrook Row canal bridge in **Islington**, both presumably planted. The year's best Islington record must be Mr Wurzell's seedling of motherwort *Leonurus cardiaca* in a number of places at Gillespie Park; it is not known how it got there. One of Mr Hounscome's sites for *Polypogon viridis* is at the foot of a wall in Magdala Avenue, Archway, and nearby was tree mallow *Lavatera arborea* known for several years in the same scruffy corner, though it might have been sown there originally. Of Prof. Edgington's many records from his home borough of **Camden**, I will mention only the non-flowering plant of Spanish gorse *Genista hispanica* on a crack in an embankment wall in Belsize Grove; very young plants of this species are easily taken for a *Ulex*. A slight correction is needed to a record of navelwort *Umbilicus rupestris* in Holborn which he has just published (Edgington 2002); it was at a committee meeting of the Wild Flower Society, where it was first noticed by Margot Godfrey. Another of Mr Woods's casual garden escapes was seedlings of canary clover *Dorycnium hirsutum* near the parents in a garden in Wood Lane. Mr Hounscome found *Polypogon viridis* by the canal in Camden, and a couple of plants of common fiddleneck *Amsinckia micrantha* near the gully on Parliament Hill Fields referred to by Villiers (1999). A new plant for the area is fern-leaved corydalis *Corydalis cheilanthesifolia*, a free-seeding garden plant of which Sheila Ayres found a total of seven plants around the corner of Daleham Gardens and Belsize Lane. Two members of The Natural History Museum staff have supplied plant records from **Kensington and Chelsea**. Roy Vickery collected Kashmir balsam *Impatiens balfourii* under a

privet hedge in Courtfield Gardens not far from the Museum. Dr Kitching noted young plants of pride of India *Koeleruteria paniculata* on railway tracks in corners of South Kensington and West Brompton Stations. Further out along the District Line in **Hammersmith and Fulham** he saw the hybrid of red and white campions *Silene* × *hampeana* north-east of Fulham Broadway, small toadflax *Chaenorhinum minus* at the end of a platform at Parsons Green and *Catapodium rigidum* in a similar situation at Putney Bridge. *Saxifraga tridactylites* was found on a former railway siding near Old Oak Common in 1988, but I had surreptitiously sown it there myself the year before! From Greenford and Northolt Country Park in **Ealing**, Neil Anderson reported four uncommon clovers *Trifolium arvense*, *T. campestre*, *T. striatum* and *T. subterraneum* on imported sand, and a flowering clump of Turkish iris *Iris orientalis*.

Passing to the outer north and west London boroughs, I had a copy of the plant list for the sewage works site at Ponders End, produced by Tim Smith for the environmental consultancy which advised on the Pickett's Lock proposed development area in **Enfield**. This contains many interesting records, such as nodding bur-marigold *Bidens cernua* and *Impatiens capensis*, mentioned elsewhere in these pages, but also presents problems, as the list is supplied without comments on the status of the plants. Were the trees paper-bark maple *Acer griseum*, never previously recorded from our area as a wild plant, and maritime pine *Pinus pinaster*, with one record, anything but planted? Cowslips *Primula veris* and wayfaring-tree *Viburnum lantana* are as wild as anything elsewhere in London, but how wild were they here? Dr Griffith had another batch of interesting plants from the spoil heap near Whetstone Station in **Barnet**, all, alas, to be regarded as merely casual here, including red hemp-nettle *Galeopsis angustifolia*, not seen as a native plant in London for many years, *Rumex maritimus*, *R. palustris* and marsh ragwort *Senecio aquaticus*. Via Mr Bevan, I learned that spear-leaved willowherb *Epilobium lanceolatum* is still at Hatch End in **Harrow** where it has been known since 1987 (Kent 2000) to Ken Jackson. Again we have large numbers of records from Carol and 'Bill' Hawkins in **Hillingdon**. I saw photographs to support those of a Mediterranean thistle *Galactites tomentosa* running riot about gardens in Bridge Road, Uxbridge, and borage *Borago officinalis* by an alley nearby. Smooth rupture-wort *Herniaria glabra* had escaped from their own garden onto the pavement. Ann Rix showed them blue-eyed grass *Sisyrinchium bermudiana* in 'Mabey's Meadow' near West Drayton. Mrs Rix's own records include *Ranunculus fluitans* in Frays River, which needs the critical examination described above, and *Carex strigosa* in Old Park Wood, which it is nice to have precisely localized. I had the good fortune to be taken by **Hounslow** ranger Christopher Slack to see a site of great interest which they had discovered east of the River Crane. This was a very wet meadow with large quantities of *Senecio aquaticus* and water purslane *Lythrum portula*, ivy-leaved crowfoot *Ranunculus hederaceus* present at the date of the visit only as numerous seedlings, both native species of bur-marigold *Bidens cernua* and *B. tripartita*, and in addition the alien beggar-ticks *B. frondosa*, and other interesting species. Later we went to the borough's Cranebank nature reserve, which has a relict population of dropwort *Filipendula vulgaris*. I was disappointed to see in one of the oxbow lakes on this site the aquatic aliens water hyacinth *Eichhornia crassipes*, least duckweed *Lemna minuta* and water lettuce *Pistia stratiotes*; somebody must have walked at least half a mile with these plants in a bucket of water in order to dispose of them. Fortunately very much global warming will be needed before either *Eichhornia* or *Pistia* can become invasive here.

V.C. 24, Bucks.

On the occasion of a visit to Black Park to see star-fruit *Damasonium alisma* which has been successfully cultivated there, I was interested to observe that lesser pondweed *Potamogeton pusillus* and common club-rush *Schoenoplectus*

lacustris had been able to colonize naturally a pond created in 1994. Afterwards I went on to a meadow near the River Misbourne which is a known site of nature conservation interest, but I do not think previous surveys have mentioned the scarce plant marsh stitchwort *Stellaria palustris* from there. A small part of our area in v.c. 24 is in the modern county of **Berkshire**, and in this I noticed a single plant of cotton thistle *Onopordum acanthium* on the north side of the A4 near Langley.

References

- BURTON, R.M. 1997. Botanical records for 1996. *Lond. Nat.* **76**: 193–201.
CLAPHAM, A.R., TUTIN, T.G. and WARBURG, E.F. 1962. *Flora of the British Isles*. Ed.2. Cambridge.
EDGINGTON, J.A. 2002. *Umbilicus rupestris* — eastward ho? *BSBI News* **90**: 12–13.
KENT, D.H. 2000. *Flora of Middlesex, a supplement to the historical flora of Middlesex*. The Ray Society, London.
NICOLLE, D.J. 2002. *Euphorbia maculata* spotted. *BSBI News* **89**: 32–33.
PHILP, E. 2002. *Conyza bilbaoana* in Kent. *BSBI News* **89**: 32.
PITT, J. 2001. Botany report 2000. *A. Rep. Orpington Fld Club* **41**: 15–20.
STACE, C. 1997. *New flora of the British Isles*. Ed.2. Cambridge.
VILLIERS, B. 1999. Vegetation: birdseed and other non-native species. In Hampstead Heath Survey: progress report for 1998. *Lond. Nat.* **78**: 187–188.

Obituary



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Ted Bangerter with Dr Aleksandr Melderis in the Botany Department of the British Museum (Natural History) c.1960

EDWARD BENEDICT BANGERTER, 1911–2001

Ted Bangerter, an honorary vice-president of the London Natural History Society, died last year in New Zealand. He joined the Society in 1947 and soon became involved in the activities of the Botany Section: he became its chairman in 1955. He was elected to Council in 1953 and was president for 1959 and 1960.

Ted joined the staff of the Botany Department of the British Museum (Natural History) in 1931, under the then sectional head of the British Herbarium, Mr A. J. Wilmott. When the Second World War was declared in September 1939 he joined the army and served therein for the next five years, mostly in India attached to the Intelligence Corps. On returning to civilian life and work at the Museum he was soon put in charge of curation in the British Herbarium.

In the years that followed, Ted was able during the course of his work to help with identification of many specimens submitted by members of the public, including LNHS members. He was also responsible for checking numerous existing records of specimens in the preparation of Douglas Kent and Ted Lousley's 'A hand list of the plants of the London Area' which was published as supplements to *The London Naturalist* over seven years, from 1951 to 1957 (LN 30–36). Ted, in conjunction with Duggie Kent, led several LNHS Botany Section field meetings, not only in Middlesex (the county in which he lived), but also in Surrey.

In recognition of all this work he had done for the LNHS he was first, in 1953, elected to the Society's Council; then, in 1955, as chairman of the Botany Section; and finally, in 1959, as president of the Society for two years. Ted was

made an honorary vice-president in 1972. Further details regarding Bangerter's work at the Museum and his close connection with the Botanical Society of the British Isles are given in John Cannon's obituary notice of him in *Watsonia* 24 (1): 128–129 (2002).

In the field, Ted became involved in 1948 with the LNHS Bookham Common Survey, at that time under the chairmanship of Cyril P. Castell. He acted as the Survey's secretary for three years during which time he prepared (with Castell) a checklist of flowering plants of the Common, which was duplicated and circularized amongst interested members. Later, with Castell, he began investigating the spread of vegetation on the Common's Eastern Plain, particularly around the gun-pits and trenches that had been dug by an army unit stationed briefly on the Common during 1940. Their work resulted in two joint papers in *The London Naturalist* for 1948 and 1950 (*LN* 28 & 30). In September 1952 he became interested in the native willows surrounding the same gun-pits which in wintertime often became water-filled. With the help of Peter and Joan Hall and myself, he took foliage from separate trees up to the Museum. These were subsequently identified by Dr A. Melderis and the results were published in *LN* 32. It had been in 1950 that Ted persuaded me to join the LNHS and to link with the Bookham Survey team. However, I had first become closely associated with Ted when I too joined the Museum's Botany Department staff in 1946. In those days we worked a five-and-a-half-day week, with Saturday afternoons free (unless the roster turn of duty required otherwise). On these free afternoons I often went botanizing with Ted. Our earlier sorties were on the excursions arranged by the South London Botanical Institute. Later we went on our own, mostly along the Thames-side between Richmond and Kew. As late as 1950 the river had not yet all been securely embanked and where earth sides remained there grew upon them many waterside plants which we could examine and record. On several occasions, after spending a pleasant afternoon botanizing, Ted would suggest we cross at Chiswick Bridge to the Middlesex side and visit his 'Gran' for tea. I was never certain what relationship Gran had to the Bangerter family. Whether she was Ted's mother-in-law or perhaps an aunt, I failed to discover. However, to Gran's we would go.

One afternoon, before we reached Gran's, we made a short diversion along a wild part of the embankment on that side of the river. Within a short distance we found several fine bushes of *Atropa belladonna* deadly nightshade. But to our astonishment, a little further along, we came upon a man bashing down these bushes with his stick. When Ted asked him why he was destroying such fine plants his reply was that he felt it was his duty in case children picked the berries to eat as black cherries.

Soon after his retirement from the Museum, Ted and his wife emigrated to the North Island of New Zealand. His two sons and their respective families had done likewise earlier. After visiting them, Ted and his wife decided to follow and join them. Once there, Bangerter immersed himself in the study of the British and European aliens that had, over the years, added to the Antipodean flora.

Had Ted remained in the UK I am certain he would have given many further years of admirable service to the LNHS.

ERIC W. GROVES

Obituary



DAVID McCLINTOCK, MBE, VMH, 1913–2001

David McClintock, who died suddenly in office as our President on 23 November 2001, was one of the outstanding field botanists and plantsmen of his generation, and one of the most distinguished presidents the London Natural History Society ever had. He had been a member since 1937.

David Charles McClintock was the son of an Anglican clergyman who had married one of the Buxton family from Easneye, on the Hertfordshire rim of our area, and lived virtually his whole life at Platt on the area's Kentish rim. Here, on that strange mixture of soils that you get between the Chalk of the North Downs and the Greensand, he created a unique garden, full of his beloved heathers and bamboos and innumerable other specialities. It was always a privilege and a liberal education to walk round it with him. From it a stock of the narrow-leaved cudweed *Filago gallica* was taken to be reintroduced at Berechurch Common, Essex, where it had become extinct as a British native in 1955.

His formal education began at West Downs prep school in Winchester from where he progressed to Harrow and Trinity College, Cambridge. On leaving Trinity, David qualified as an accountant, but was soon caught up in the Second World War from which he emerged as a lieutenant-colonel. During the war, in 1940, he had married Anne Dawson, who shared his interest in plants and had joined the Wild Flower Society before him. During his professional career with the Coal Utilization Council from 1951–1973 he became its chief accountant and administrative officer. His duties required travel all over the country, during which he was able to botanize to good effect.

But it was first as a botanist and later as a plantsman that David made his enduring reputation. Wild flowers had been one of his main interests intermittently from childhood. The extensive knowledge of the British flora he had acquired during his first forty years came to fruition when he joined myself in co-authoring *The pocket guide to wild flowers* in 1956, first of the modern botanical field guides. Before that you had to choose between Bentham & Hooker (and colour your own pictures) and Edward Step in *The Wayside and Woodland Series*. Soon after this, he turned more to garden flowers, becoming closely involved in the Royal Horticultural Society and the Heather Society, which he founded in 1963 and played a leading part in, and, of course, the Bamboo Society.

David's main activities in London had been his involvement in the two surveys of the natural history of Buckingham Palace Garden, the first seeds of which were sown when he had been one of a party which visited the Garden in June 1956. The results of this first survey, which dated from 1960, and involved LNHS members and Natural History Museum specialists, were published by our sister society, the then South London Entomological and Natural History Society in their *Proceedings and Transactions* in December 1964. Three decades later, he initiated the second survey and this time the LNHS was fully involved, again ably assisted by other specialists. The results of the second survey were published in 1999 and 2001 as Supplements to *The London Naturalist* 78 and 80. The draft of David's 2001 Presidential Address to the LNHS, in which he describes the background of the two surveys, appears on pages 15–18 of this journal.

Fittingly, many honours were bestowed on David in recognition of his valuable contributions to botany and horticulture. He had been president of the Botanical Society of the British Isles, the Ray Society and the Wild Flower Society, and had, amongst others, been a founder member of the Garden History Society, the Kent Field Club and the Kent Trust for Nature Conservation. In 1993 he received from the Linnean Society of London their H. H. Bloomer Award for his contribution to natural history, whilst, in 1995, he was awarded the Royal Horticultural Society's highest accolade, the Victoria Medal of Honour. He had earlier, in 1981, received their gold Veitch Memorial Medal. Finally, David was awarded the MBE 'for services to botany', being informed of this shortly before he died.

David's wife Anne died in 1993, but he is survived by two sons, two daughters, eight grandchildren and two great grandchildren. To them we extend our sincere condolences.

RICHARD FITTER

Editor's note. David McClintock published regularly and prolifically in many journals and was the co-author of numerous books. An extensive summary of his publications appears following his BSBI obituary in *Watsonia* 24 (2): 257–266 (2002).

Obituary



RUTH DAY, B.SC., 1940–2002

The sudden death of Ruth Day (R.C.M. Cachemaille-Day) in March 2002 has deprived the Society of one of its most active and influential officers and past presidents.

Ruth was educated at Cheltenham Ladies' College and at the Central School of Speech and Drama in London. Later in life she enrolled at the Polytechnic of Central London where she gained her B.Sc. in Life Sciences in 1986. Following a short period working for the family architectural business in Brighton, Ruth was employed as a training consultant for a range of London-based companies. These included J. Sainsbury plc and its newly formed subsidiary Sainsbury's Homebase where she ran their training department. More recently, Ruth worked for the Environmental Section of the Royal Society of Arts where she devised and organized their highly successful conferences on ecological topics in the early 1990s. The conferences included 'The Future of Britain's Estuaries', 'Investing in Conservation', and 'Conserving Natural Resources in Britain'. It was at the RSA that Ruth developed her considerable skills in database construction — later to be put to good use on behalf of the LNHS. Outside her professional work, Ruth was always actively involved in the voluntary sector. She was, for example, a very effective fund-raiser for the World Wildlife Fund UK (World Wide Fund for Nature) throughout the 1980s when she co-ordinated two Supporters Groups and organised a national flag day on their behalf. Ruth also worked as a volunteer for the Horniman Museum at Forest Hill in south-east London, where she carried out a biological survey and wrote a detailed management plan for their Railway Nature Trail in 1986.

Ruth joined the LNHS in 1985 and her keen interest in dragonflies quickly became apparent through the annual series of Odonata reports which she prepared for the Bookham Common Survey. She was to become the Society's dragonfly recorder in 1996. Ruth was elected to Council in 1989 and since that time she served the Society in an extraordinarily wide range of capacities. If a job needed to be done, Ruth invariably offered to take it on. She became our president in 1992 and in her two presidential addresses she set out her thoughts about the Society's role in the burgeoning nature conservation movement in London. She was convinced of the need to make our records more easily accessible. To this end she created the post of 'Recorder' Programme Liaison Officer through which she was to encourage the Society's recorders to use

software compatible with 'Recorder' — the comprehensive database then being developed by English Nature. Ruth's deeply felt passion for nature conservation and her concern at the continuing loss of green space in London led her in 1996 to help set up the Society's Nature Conservation Working Group for which she acted as secretary until the time of her death. In addition to writing letters in defence of vulnerable sites, the Group arranges talks, organizes training days and has undertaken joint projects with the London Wildlife Trust. Ruth was always keen to organize such joint endeavours and she became an active member of LWT's Council around this time. She also represented the Society on the London Biodiversity Partnership and served on several of its committees. Ruth was determined to ensure that the LNHS, as a founding partner, was fully involved in the unfolding London Biodiversity Action Plan and, particularly close to Ruth's heart, in the future development of a Biological Records Centre for London. As if all this activity and commitment on our behalf were not enough, in 1998 Ruth became editor of the Society's membership list as a preliminary to taking on the onerous task of membership secretary the following year. She was also responsible for designing a database for use in the Society's new survey of Hampstead Heath.

Ruth brought a sharp mind and an eloquent and articulate voice to all she did for the Society. Always forthright in her views, she could occasionally 'ruffle feathers'. She was impatient to 'get things done' and was sometimes frustrated by what she perceived as unnecessary procedural delay. Nevertheless, she always had the Society's best interests at heart and devoted a huge amount of time and energy to our affairs.

The Society has lost one of its most loyal, enthusiastic and committed members. Finding others to carry forward what she achieved will be a hard task indeed.

DAVID BEVAN

Book reviews

Provisional atlas of British spiders (Arachnida, Araneae). Volumes 1 and 2. Compiled and edited by Peter R. Harvey, David R. Nellist and Mark G. Telfer. Biological Records Centre, Huntingdon. 2002. Vol. 1 to p. 214, vol. 2 to p. 406, over 1,000 distribution maps and bar charts. A4 paperback, ISBN 1 870393 63 5 (vol. 1), 1 870393 64 3 (vol. 2). £20 post free from Publication Sales Section, CEH Monks Wood, Abbots Ripton, Huntingdon, Cambridgeshire PE28 2LS.

Before directly discussing the above, I think that it might be interesting to recall the tremendous upsurge in interest for natural history which occurred in Britain in the years following the Second World War and into the 1950s. In 1945 there appeared the first volume of the outstanding New Naturalist series published by Collins. The sheer range of natural history topics covered by this series must have fired the imagination of many an individual — much to the benefit of the individual and also to local natural history societies.

Towards the end of the fifties there appeared in this series *The world of* [in the main, British] *spiders* by W.S. Bristowe. This book provides a first-rate introduction to the study of spiders. Sections on folklore, history and taxonomy are followed by Bristowe's principal interest — behaviour of spiders. In this department Bristowe excels, and anyone who is only remotely interested in behaviour would not fail to be captivated by his accounts.

Earlier, in 1951 and 1953, appeared the two volumes of *British spiders* by Locket & Millidge, published by The Ray Society. These provided names and detailed taxonomic accounts of British spiders to date, together with such rough habitat, seasonal and distributional data as was available to them at that time. Without doubt, the most important contribution was the provision of the names and descriptions of British spiders. Prior to Locket & Millidge, such information was very fragmented, being largely confined to scientific journals and, consequently, out of the reach of many general naturalists. As, no doubt, he intended, Bristowe's book forms an ideal complement to the two volumes of Locket & Millidge. The overall effect of these books on the number of people studying British spiders was electric. A glance at Fig. 3 in Vol. 1 of the *Provisional atlas* tells all. The Flatford Mill Spider Group (some eleven strong) was founded in 1958 which, in turn, led to the formation of the British Arachnological Society with, at present, some 300 British members and over 200 overseas members.

At roughly the same period, the Botanical Society of the British Isles embarked on a most remarkable project which led, in 1962, to the publication, by Nelson, of *Atlas of the British flora*, in which plant records are plotted on 10-km squares. For generations there appears to have been no shortage of British botanists and there were records aplenty. Although punched-card machinery was available, there was nothing comparable to the present-day PC, to cope with the huge mass of data available. Yet, in the space of eight years the Botanical Society had produced an atlas in which, not surprisingly, the maps look remarkably like those in the *Provisional atlas of British spiders*. Any correlation?

The first distribution maps for British spiders appeared in 1974, when the update, *British spiders* Vol. III by Locket, Millidge & Merrett, appeared. The records were plotted by counties with black dots for the rarer species and all black for the commoner species.

Since that time, the rapid development of two PCs, the personal computer and the personal car, together with longer holidays, have all contributed to the significant growth in the number of spider records. By the 1980s it was thought that spider records had reached such proportions that reasonable distribution maps, based on 10-km squares, could be produced. However, as most of the data were still in the hands of private individuals, assembling it in an acceptable form was clearly going to take a gargantuan effort. Bravely, in 1987, Clifford Smith undertook this formidable task and became National Organiser. Some fifteen years (and two more National Organisers) later the *Provisional atlas* emerged. In part, some of the length of time taken seems to have been due to communication problems with the Biological Records Centre, possibly caused by the erratic way it is funded by the government of the day. It is likely, given the standard of present-day PCs and desk-top publishing, that societies, similar to the British Arachnological Society, may well, in future, contemplate undertaking such projects and publishing the results themselves.

In the Introduction to the *Provisional atlas* various topics are discussed. These include notes on the Recording Scheme, Species, Maps, European distribution, Male/female data charts, Coverage, Validation (of records), Habitat data, Conservation, and an interesting

section on predators of spiders. Following the Introduction there is a list of all the British spider species to date, together with the British status of many of the species.

Alongside the maps themselves there are notes on Status, Distribution, Habitat and ecology, Threats, and Management. I think it would have been helpful, especially for those people starting to study spiders, if a typical length for the spider had been incorporated — possibly a scale line alongside each map. This information, together with the colour illustrations provided in the books by Dick Jones and Mike Roberts, could well have helped interested naturalists to identify, at least, some of the larger British spider species.

The order of the species maps follows the present day 'natural order' for the spider families. As is evident from present-day research on spiders worldwide, this natural order is still evolving. This has resulted in some old families being modified and moved, whilst new families are being introduced. Consequently, for catalogue purposes, the natural order is unsatisfactory. From this point of view, I have found that locating a particular species in Bonnet's catalogue is much quicker and easier than in any of the subsequent catalogues.

At the end of the second volume there is an excellent reference list and page index for the maps, listing alphabetically, both species and genus. Bearing in mind the space available and the versatility of the present-day PC, I think it would have been helpful for the reader, had the family (in brackets) also been given.

All in all, the *Provisional atlas* which has materialised, amply reflects the great debt owed by members of the British Arachnological Society to the sustained efforts and patience of the editors.

By way of a postscript, it is hoped that the *Provisional atlas* will encourage, at least, some other notable European countries to follow suit. Belgium, Slovakia and Switzerland already have comprehensive distribution maps available, whilst Holland certainly has sophisticated distribution maps on computer. Such information will be invaluable when sufficient spider records become available for the provision of distribution maps, on a world scale, for spider families, genera and even species!

JOHN MURPHY

The freshwater algal flora of the British Isles. An identification guide to freshwater and terrestrial algae. Edited by David M. John, Brian A. Whitton and Alan J. Brook. Cambridge University Press with The Natural History Museum and The British Phycological Society. 2002. 702 pp., A4 hardbound plus CD-Rom. £75, US\$125. ISBN 0 521 77051 3.

The algae are a fascinating group, and contain some of the most beautiful objects to be seen under a microscope. They are not only pretty, but essential to life on this planet. Three billion years ago, the algae created an atmosphere we can breathe and continue to sustain life on Earth, accounting for half the transfer of carbon dioxide from the atmosphere back into the biosphere and occupying an unenviable position at the bottom of the food chain. Although there has been a good introduction to the freshwater algae since 1984 (Pentecost 1984) there has been no attempt at a complete flora since the work of West and Fitch in 1927.

It should be said that this book is not comprehensive, but as near as we are likely to get. There are about 5,000 species of algae in the British Isles and this book covers 1,700. Of the 800 species of desmids only 300 of the commonest are here. However the major omission is the diatoms, of which we have 2,000 species.

The reason, explains the Preface, is that in 1998 the diatomists on the editorial committee withdrew 'believing it impossible to include diatoms until much further taxonomic research had been carried out.' It continues: 'Fortunately, diatoms are one of the few algal groups for which there already exist fairly comprehensive identification guides.' I cannot think of any such in English: there is Barber and Haworth's book which covers 47 genera and there is the more recent work of Eileen Cox which covers about a quarter of the species.

'No waterbody in the British Isles has been reported to have conditions extreme enough to prevent algal growth' is how the book begins, introducing a section on the scope of the *Flora* and proceeding through a discussion on distribution and ecology to a history of freshwater algal studies in the British Isles.

There are two sections on field and laboratory methods which are full of good advice on general collection and forcing reproductive structures. A short section on classification is followed by a key to the main groups, the blue-green, the yellow-green, the green, the brown, the golden-brown and the red. The phyla considered are Cyanophyta, Rhodophyta, Euglenophyta, Cryptophyta, Pyrrophyta, Raphidophyta, Haptophyta,

Chrysophyta, Xanthophyta, Eustigmatophyta, Bacillariophyta (only just), Phaeophyta, Prasinophyta, Chlorophyta and Glaucophyta.

The great advantage of this book is that it keys most of the algae to species level. Previously, one has had to track down keys scattered throughout a great number of journals, relying on George's 1976 paper. The comprehensive keys are clear and based on characters that can be seen using the light microscope. The illustrations are good, often excellent, with very few that are merely adequate. Difficult groups such as the euglenoids and the cryptomonads are well done, as are problem species in genera such as *Oscillatoria* and *Lingbya* in the Cyanophyta. The Chlorophyta, the green algae, is the most species-rich and diverse group of all the algae. It gets a mighty chapter, 326 pages long, which alone is worth the price of this book.

The Introduction states: 'Little consideration is given to ultrastructural detail, since most users of this volume will not have access to scanning or transmission electron microscopy.' This causes a problem for the chapter on the Chrysophyta. Most of the silica-scaled forms can only be identified with certainty using the electron microscope. Jorgen Kristiansen therefore confines himself to those which can be identified by light microscopy.

Dr Kristiansen's book on the Chrysophyta does not appear in the references, although it was published last year. This may be production deadlines, but the chapter on the red algae omits any reference to Shigeru Kumano's thorough revision of the order Rhodophyceae in 2000 and the 1997 work of Tim Entwistle and Helen Foard.

There are no colour plates in the book, but there is a CD-ROM with 500 colour pictures of various species tucked inside the back cover. It will run on any graphical web browser, such as Netscape or Internet Explorer. The recommended minimum specifications are a Pentium II with a 350MHz processor, 64Mb of memory, 24× CD-ROM and a 8Mb graphics card. To use, you click on the phylum and scroll the alphabetical arranged list of taxa. You can search it using a 'search on page' function but if you don't know the phylum, you'll have to look it up in the book.

This is an exceptional book that lives up to its claim in the Preface, a book designed for 'non-specialists requiring a user-friendly, well-illustrated guide written in English that [describes] as many of the British freshwater algae as possible'. There are some areas where it disappoints slightly, and there is no excuse for getting the caption to the cover photograph wrong; someone among the team should know the difference between dark-field and differential interference contrast. But everyone who studies algae will be grateful for this book.

MARK BURGESS

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Submission of papers

Papers should be submitted **in duplicate** to the editor, Mr K. H. Hyatt at his home address, 1 Tremcelynog, Rhandirmwyn, Llandoverly, Carmarthenshire SA20 0NU. Please contact the editor before the end of January if you wish to contribute to the forthcoming issue. However, the editor may be contacted at any time on 01550 760346 to discuss possible contributions, and will be pleased to send a recent offprint to show our style, and as a guide to preparing the manuscript. Manuscripts **must** be double spaced on one side of the paper only and with wide (3-cm) margins. Authors must retain a copy. Papers should include at the beginning an **abstract, summary or synopsis. Sheets must be numbered.** Papers are peer-reviewed as appropriate. After acceptance, the editor would be pleased to receive contributions as ASCII files on disc in IBM-compatible format. Papers should be relevant to the natural history and archaeology of the London Area. This includes comparisons between London and its surrounding countryside with other localities, as well as work relating to or comparing species or habitats which occur in the London Area. Contributions of relevance nationally will also be considered.

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References

Reference citation should be based on the Madison rules (*Bull. Torrey bot. Club* **22**: 130–132 (1895)), except that a colon should always precede a page number. Capitalization in titles of books and papers in journals should be kept to a minimum. Journal titles should be in full, or follow the abbreviations in the *World list of scientific periodicals*, and be underlined or in italics. Book titles should also be underlined or in italics.

Examples are as follows:

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Meadows (1970:80) or (Meadows 1970).

In references:

MEADOWS, B. S. 1970. Observations on the return of fishes to a polluted tributary of the River Thames 1964–9. *Lond. Nat.* **49**: 76–81.

MELLANBY, K. 1970. *Pesticides and pollution*. Ed.2. Collins, London.

WHITE, K. G. 1959. Dimsdale Hall moat, part II. *Trans. a. Rep. N. Staffs. Fld Club* **92**: 39–45.

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